

DIVISION 1-GENERAL REQUIREMENT

SECTION 011010 - SUMMARY OF WORK

PART 1 – GENERAL

1.01 SUMMARY

- A. General work included in this section:
 - 1. Furnish all labor, materials and equipment required by the Contract Documents or required to complete the Work.
 - 2. Coordinate work of all trades.
 - 3. Furnish and install miscellaneous items incidental to or necessary for completion of the Work, whether these items are specifically indicated in the Contract Documents or not.
- B. Time Allowance for Completion – 45 working Days
- C. Liquidated Damages - \$500/day

1.02 WORK COVERED BY CONTRACT

- A. The Work covered under this Contract will be performed at a site called Harrison Park Playground within the City of Sausalito. The project location is indicated on the Drawings.
- B. The Work includes, but is not limited to:
 - 1. Demolition of existing park improvements including but not limited to:slabs, retaining walls, fencing, header boards
 - 2. Clearing small plants, ivy, as called out by the plans and these specifications. Preserving larger trees as called out in plans.
 - 3. Mass grading.
 - 4. Traffic control.
 - 5. Construction of new retaining walls (wood or concrete as add alternate)
 - 6. Construction of concrete seating, walls and stair
 - 7. Construction of pervious concrete ADA compliant walkway
 - 8. Construction of ADA compliant play area with Slide, Swing and teeter-totter apparatus
 - 9. Construction of paver patio area
 - 10. Construction of Solid Redwood fencing
 - 11. Construction of hog wire fencing
 - 12. Construction of Entry Gate
 - 13. Planting of ground cover
 - 14. Planting of small shrubs
 - 15. Planting of trees
 - 16. Installation of irrigation for plant establishment(Add Alternate)
- C. Owner-Furnished Equipment:

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1. None.

1.03 OTHER CONTRACTS

- A. Though no volunteer group work is expected to coincide with construction activities. Coordination with the subcontractors or other groups undertaking related work or un-related work within the project work areas is the responsibility of the Contractor.

1.04 SPECIFICATION LANGUAGE

- A. Specifications may be written in the imperative mood and streamlined form in accordance with practices and principals of the Construction Specifications Institute.
- B. Imperative language is directed to the Contractor unless specifically noted otherwise.
- C. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

1.05 REGULATORY REQUIREMENTS

Comply with all Federal, State, and local laws, regulations, codes, and ordinance applicable to the work.

- B. References in the Contract Documents to local codes shall mean those of City of Sausalito.
- C. Other standards and codes that apply to the work are designated in the Specifications.

1.06 ACCESS BY GOVERNMENT OFFICIALS

- A. Authorized representatives of governmental agencies shall at all times have access to the work area. Provide proper facilities for access and inspection.

1.07 PROTECTION OF PUBLIC AND PRIVATE PROPERTY

- A. Site work is expected to encounter numerous existing features of various types, such as fences, drain culverts, irrigation facilities, roadside drainage facilities, signs, private and public driveways, curbs, asphalt pavement, building foundations, utility poles, guy wires and other surface structures. Where not called out for removal or protection by the plans or as directed in writing by the Owner, the Contractor shall protect existing features of this nature and all features affected by construction operations shall be restored to their original condition.
- B. To the greatest extent possible, remove existing features without damaging the materials and re-use the material to place back in the original condition. When existing features are damaged during removal, install new materials of similar type, appearance and function, at no additional cost to the Owner.
- C. Contractor shall be responsible for all damage to streets, roads, highways, driveways, shoulders, ditches, embankments, culverts, bridges, and other public or private property, regardless of location or character, that may be caused by transporting equipment, materials, or workers to or from the work or any part or site thereof, whether by Contractor or Contractor's subcontractors or suppliers.
- D. Make satisfactory and acceptable arrangements with the Owner of, or the agency or authority

having jurisdiction over, any damaged property concerning its repair, replacement, or payment of costs incurred in connection with the damage. The Engineer will not consider work on private property to be completed until the Contractor has obtained a signed copy of the **Landowner Release Form, Form 01999-8**, and has provided the Engineer with a copy of the signed document.

- E. Keep fire hydrants and water control valves free from obstruction and available for use at all times.
- F. In areas where the Contractor's operations are adjacent to or near a utility and such operations that may cause damage resulting in expense, loss and inconvenience, construction operations shall be suspended until all arrangements necessary for the protection thereof have been made by the Contractor.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

*****END OF SECTION*****

SECTION 01025 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 GENERAL

- A. Measurements of the completed work shall be in accordance with, and by instruments and devices calibrated to United States Standard Measures and the units of measurement for payment, and the limits thereof, shall be made as shown on the Plans, Specifications, General Conditions and Requirements, and Supplementary Conditions.
- B. Units of Measurement
 - 1. Measurements shall be in accordance with U.S. Standard Measures.
 - 2. A pound is an avoirdupois pound.
 - 3. A ton is 2,000 pounds avoirdupois.
 - 4. The unit of liquid measure is the U.S. gallon.
- C. Certified Weights
 - 1. When payment is to be made on the basis of weight, the weighing shall be done on certified platform scales, or when approved by the Construction Manager, on a completely automated weighing and recording system.
 - 2. The Contractor shall furnish the Construction Manager with duplicate licensed weighmaster's certificates showing the actual net weights.
 - 3. The City will accept the certificates as evidence of the weights delivered.
- D. Methods of Measurement
 - 1. Materials and items of work which are to be paid for on the basis of measurement shall be measured in accordance with the method stipulated in the particular sections involved.
 - 2. In determining quantities, all measurements shall be made in a horizontal plane unless otherwise specified.
 - 3. Material not used from a transporting vehicle shall be determined by the Construction Manager and deducted from the certified tag.
 - 4. When material is to be measured and paid for on a volume basis and it would be impractical to determine the volume, or when requested by the Contractor in writing and approved by the Construction Manager in writing, the material will be weighed and converted to volume measurement for payment purposes.
 - 5. Factors for conversion from weight measurement to volume measurement will be determined by the Construction Manager and shall be agreed to by the Contractor before such method of measurement of pay quantities will be adopted.
 - 6. Full compensation for all expense involved in conforming to the above requirements for measuring and weighing materials shall be considered as included in the unit prices paid for the materials being measured or weighed and no additional allowances will

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be made therefore.

7. Quantities of material wasted or disposed of in a manner not called for under the Contract; or rejected loads of material, including material rejected after it has been placed by reason of failure of the Contractor to conform to the provisions of the Contract; or material not unloaded from the transporting vehicle; or material placed outside the lines indicated on the Plans or given by the Construction Manager; or material remaining on hand after completion of the Contract, will not be paid for and such quantities will be deducted from the final total quantities.
8. No compensation will be allowed for hauling rejected material.

1.02 BID ITEMS

The Bid amounts for each Bid Item will be used for comparative bid analysis. The Bid amounts will also form the basis of monthly progress payments. Each Lump Sum bid amount will undergo further breakdown as described later in this Section. Unit prices for any unit price bid items will be the basis for monthly progress payment determinations and for any changes related to that Work item. Bid items are not intended to be exclusive descriptions of work categories and the Contractor shall determine and include in its pricing all materials, labor, and equipment necessary to complete each Bid Item (work phase) as shown and specified.

A. Bid Item 1 – Mobilization and Demobilization

1. This bid item shall be lump sum. Payment shall be made at fifty (50%) percent of the bid item amount on the first progress payment following completion of mobilization and the remaining amount on the final progress payment, with retention withheld as allowed by the Contract Documents.
2. This bid item shall include payment for obtaining all bonds, all Contractor acquired permits, licenses, agreements, certifications, notices of intent, and temporary easements; moving onto the Site of all equipment, materials and staff including obtaining and set up of Contractor's staging area/yard; furnishing and erecting all needed construction facilities, fencing, project signage, project security, demobilization, preconstruction photographs, video recording of surface features, progress schedules and reports, contract meetings, and record drawings. City Permits (grading and encroachment) are granted as part of project award.
3. No payment for mobilization and demobilization, or any part thereof, will be approved for payment under the Contract until all applicable mobilization and demobilization items listed above have been completed.
4. This amount shall not exceed five percent (5%) of the total bid price for the Work.

B. Bid Item 2 – Erosion Control Pollution Prevention

1. This bid item shall be lump sum. Payment for this item will be prorated over the course of the Project based on percentage complete of all items.
2. This bid item includes preparing detailed erosion control plan/stormwater pollution prevention plan subject to approval by the City of Sausalito. Plan should include reference Caltrans Construction Site BMP Manual which designates the following:
 - (a) Measures to control or prevent pollution of surface runoff from erosion, mud and sediment, material stockpiles (which shall be at or nearby the worksite) and on-site vehicle/equipment storage and maintenance. **These shall include**

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preventing any contaminated water, such as saw-cut wash water, from entering storm drain system.

- (b) Provisions for maintenance and repair of control measures, personnel training, waste disposal and, if necessary, on-site sanitary facilities.

These documents together, represent the Stormwater Pollution Prevention Plan.

The City does not have a yard available for contractor use in executing work of this provision. Contractor may propose modifications in writing subject to approval by the Engineer.

Work includes installation of necessary materials and maintenance(including the need to remove and replace materials that have deteriorated and not function as installed)

Upon learning of approaching inclement weather, the contractor shall initiate the appropriate pollution prevention measures pursuant to the SWPPP and during the course of such inclement weather, shall assign personnel to regularly visit, inspect, document, report and as necessary, maintain, the enacted pollution control measures. Contractor shall submit site inspection reports to the Engineer after each storm event resulting in measurable precipitation.

Contractor shall have sole liability for failing to comply with these provisions. Item includes placing, adjusting and removing pollution prevention measures, such as, but not limited to: silt fences, straw wattles, fiber mats, hydroseed, inlet filters, check dams, plastic film to protect material from contact with rain, and all incidentals necessary for worker, pedestrian and traffic protection, including furnishing all equipment, materials and personnel associated therewith, and in accordance with these Specifications.

C. Bid Item 3 – Demolition

1. This item shall be lump sum. Payment for this item will be made proportional to amount of demolition work completed at time of payment request as determined by the Owner with retention withheld as allowed by the Contract Documents.
2. This bid item includes removal of existing facilities as shown on the plan and minor incidentals as directed in writing by the owner. The site is served by a water line. It is expected that this line will be re-used (though upgraded if not in compliance with current code requirements – see fountain item for additional info) therefore needs to be protected. All materials removed under this item shall become the property of the Contractor. Salvageable material shall be recycled as much as feasible. Waste material shall be lawfully disposed of at certified Waste Disposal Facility. Contractor shall furnish weight or volume tags of materials recycled and wasted prior to or concurrent with payment request. Item shall also include clearing of all ground cover and plant material called out for removal, including plant material growing on perimeter fencing. Item includes furnishing all equipment, materials and personnel therewith, and in accordance with these Specifications

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D. Bid Item 4 – Wood retaining walls @perimeter/Fence w/ subdrain

1. This item shall be paid per linear foot. Payment of this item will be made based on quantity of item as furnished and installed as of date of payment request as determined by Owner with retention withheld as allowed by the Contract Documents.
2. This bid item includes installing Retaining wall at the site perimeter as shown on the plans and as may be further detailed in attachments to these specifications. The Easterly and Southerly boundary shall be suitably prepared to accept a 6' high solid redwood fence as detailed on the plans. Though not anticipated any retaining wall placed along the Northerly boundary should be prepared to accept a 42" high "hogwire" fence as detailed on the plans. This item includes furnishing and installing 4 inch perforated pipe subdrain that shall be imbedded in a ¾" drain rock with through wall weep holes spaced at approximately 10 feet intervals. Contractor shall verify fence post connection detail with Owner prior to installing the brackets and fasteners. Item includes furnishing all equipment, materials, and personnel therewith and in accordance with these plans.

E. Bid Item 5 – Redwood Fencing

1. This item shall be paid per linear foot. Payment of this item will be made based on quantity of item as furnished and installed as of date of payment request as determined by Owner with retention withheld as allowed by the Contract Documents.
2. This bid item includes installing Solid Redwood Fencing at the site perimeter as shown on the plans and as may be further detailed in attachments to these specifications. Plans show exact replacement of existing facility. By this specification some allowance can be considered to vary board widths and thickness subject to proposal by contractor and acceptance by Owner. The Easterly and Southerly boundary shall have a 6' high solid redwood fence as detailed on the plans. Fence installed on top of retaining wall shall be separate from but securely attached to the retaining wall. Fence post foundations receiving wood posts shall be Portland cement concrete fabricated with galvanized steel or similar corrosion protected metal bracket anchored into the foundation. Fence posts shall be securely through bolted with compatible corrosion resistant steel bolts and nuts and washers to the brackets in at least two places or as called out in the plan details. Contractor shall verify fence post connection detail with Owner prior to installing the brackets and fasteners. Fencing board shall be secured by at least two screws along the top and bottom horizontal support members. The horizontal support member shall be screwed into wood fence posts. Item includes furnishing all equipment, materials, and personnel therewith and in accordance with these plans.

F. Bid Item 6 – Hogwire Fencing

1. This item shall be paid per linear foot. Payment of this item will be made based on quantity of item as furnished and installed as of date of payment request as determined by Owner with retention withheld as allowed by the Contract Documents.
2. This bid item includes installing Fencing at the site perimeter as shown on the plans and as may be further detailed in attachments to these specifications. The Northerly and Westerly boundary shall have a 42" high "hogwire" fence as detailed on the plans. Fence installed on top of retaining wall shall be separate from but securely attached to the retaining wall. Fence

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post foundations receiving wood posts shall be Portland cement concrete fabricated with galvanized steel or similar corrosion protected metal bracket anchored into the foundation. Fence posts shall be securely through bolted with compatible corrosion resistant steel bolts and nuts and washers to the brackets in at least two placed or as called out in the plan details. Contractor shall verify fence post connection detail with Owner prior to installing the brackets and fasteners. The horizontal support member shall be screwed into wood fence posts. Item includes furnishing all equipment, materials, and personnel therewith and in accordance with these plans.

G. Bid Item 7 – Rough Grading

1. This item shall be lump sum. Payment of this item will prorated based on percentage of work completed at time of payment request as determined by Owner with retention amount withheld as allowed by the contract Documents.
2. This bid item includes all earth excavation necessary to contour the ground to approximate shape called out by the plans. Item may include import or export of soil to enable the site to conform to plan contours and spot elevations. Soil removed shall be lawfully reused or disposed of at an authorized solid waste facility. Contractor shall furnish tags evidencing the location where off hauled material was sent. Item includes furnishing all equipment, materials and personnel associated therewith, and in accordance with these Specifications.

H. Bid Item 8 - Concrete Piers

1. Concrete Piers shall be paid per each. Payment of this item will prorated based on amount of work completed at time of payment request as determined by Owner with retention amount withheld as allowed by the contract Documents.
2. Concrete Pier shall be installed as part of retaining wall at the perimeter fence at approximate 6' spacing. Piers shall be 5.5 feet deep unless pier hole excavation encounter bedrock conditions. Piers shall be no less than 15 inches in diameter. Reinforcement shall be per the Engineer. Bracket shall be set in the pier hole to accept fence post. Piers shall be installed so that the center of the pier is offset from the property boundary by the radius of the pier hole. The goal is to have no element of the pier crossing over the property boundary. Contractor can work with Land Surveyor Linda Carruthers to affect pier staking. Staking costs will be borne by the Contractor. Pier position is expected to be in approximately the same location as expected but unknown foundations of fence posts. Existing corner post foundations in conflict with new foundation shall be removed. Between corner footings may be situated near existing footings without removing the footings. Existing footings can be considered for re-use if found to be in acceptable condition by the owner upon exposing.

I. Bid Item 9 – Concrete, Bid Item 10 - Concrete Stairs

1. Concrete shall be paid per linear foot. Concrete Stair shall be paid per square foot. Payment of this item will prorated based on percentage of work completed at time of payment request as determined by Owner with retention amount withheld as allowed by the contract Documents.

PART 1 - GENERAL

1.1 DESCRIPTION

A. Provide Portland cement concrete site work complete, including the following principal items:

1. Toned concrete stair
2. Toned concrete seat curbing
3. Permeable toned concrete path paving
4. Path curbing
5. Paver edge bands
6. Low on-site retaining walls
7. Footings for posts and structures.

1.2 QUALITY ASSURANCE

A. Reference and Standards

1. Perform work in accordance with all applicable laws, codes and regulations required by the City of Sausalito.
2. Reference to "Standard Specifications" shall mean the current Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, CALTRANS.
3. The American Concrete Institute (ACI): "Manual of Concrete Practice," Parts 1, 2 and 3.
4. The American Concrete Institute (ACI): "Recommended Practice for Concrete Formwork" (ACI 347R)
5. The American Concrete Institute (ACI): "Hot Weather Concreting", 305R-99
6. The American Concrete Institute (ACI): Guide for Concrete Slab construction, 302.1R-07
7. The American Concrete Institute (ACI): "Standard Specification for Cold Weather Concreting, 306.1-90 (R2002)
8. United States Voluntary Product Standard for Construction & Industrial Plywood (PS 1-95).
9. American Plywood Association's "Guide to Plywood Grades" (APA).
10. West Coast Lumber Inspection Bureau's "Standard Grading Rules No. 17" (WCLIB)
11. Concrete Reinforcing Steel Institute (CRSI): "Manual of Standard Practice" and "Recommended Practice for Placing Reinforcing Bars".
12. American Welding Society: AWS A5.1 and AWS D1.1 and D1.2.
13. Americans with Disabilities Act (ADA), Federal ADA/State of California Title 24 Standards.
14. California Code of Regulations, Title 24, 2007 Edition, also known as California Building Code (CBC).

B. Stipulations

1. Finish Surface Tolerance: 1/4-inch maximum variation in 10 feet.
3. At no point shall paving surface fail to drain.
4. Finish Concrete Surface Slip Resistance: Shall have a minimum slip resistance coefficient of 0.65 on concrete pavement with less than 5% slope and 0.8 on concrete pavement with more than 5% slope.

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5. Walls retaining soil that retain 30 inches or more of soil shall include a subsurface drain behind wall per Section 68 of the Standard Specifications and as accepted by the Owner's Representative.
6. Concrete slabs shall be independent of curbs and shall be separated by means of expansion joints, allowing seven days curing time between pours on the other side of the expansion joints.
7. Concrete for paths, seats, stair shall be toned concrete in conformance with color sample approved by City of Sausalito Planning Commission and in the offices of the City Engineer for reference.

B. Conform to ACI 318, Section 5.13 during hot weather and to ACI 318, Section 5.12 during cold weather.

C. Requirements of ACI 318 shall govern work, materials and equipment related to this Section; specifications herein set minimum results required, and references to procedures are intended to establish minimal guides.

D. The Contractor shall be responsible for quality of concrete in place and shall bear burden of proof that concrete meets minimum requirements. Contractor shall confirm that site soils do not contain elevated levels of sulfate that would require sulfate resistant concrete as outlined in Table 4.3.1 of the ACI 318 Building Code or Table 19B-A-3 of the Uniform Building Code. If the site soils contain elevated levels of sulfate, it is the Contractor's responsibility to request mixes that meet the aforementioned requirements.

E. Placing of concrete by means of pumping will be an acceptable method of placement providing that the Contractor can demonstrate that:

1. Specified concrete strengths will be met.
2. Equipment has a record of satisfactory performance under similar conditions and using a similar mix.
3. Trial batches have been successfully made.

F. Installer Qualifications: Concrete work shall be by firm with 5 years experience with work of similar scope and quality.

I. Formwork Design Criteria: Formwork shall conform to ACI 318, Section 6.1 and CBC Section 1906A.

1. Formwork:
 - a. Shall prevent leakage or washing out of cement mortar.
 - b. Shall resist spread, shifting, and settling.
 - c. Shall reproduce accurately required lines, grades and surfaces within tolerances specified.
2. Safety: The Contractor shall be responsible for adequate strength and safety of all formwork including falsework and shoring.
3. Formwork allowable tolerances: Formwork shall produce concrete within tolerance limits recommended in ACI 318, Section 6.1, unless otherwise noted.

1.3 TESTS

A. Per Caltrans Standard Specifications, Section 6-3.02 Testing arranged and paid by Contractor.

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B. Should tests show that concrete is below specified strength, Contractor shall remove all such concrete, as directed by the Owner. Full cost of removal of low strength concrete, its replacement with concrete of proper specified strength and testing, shall be borne by Contractor.

1.4 COORDINATION: Coordinate items of other trades. Contractor shall be responsible for the proper installation of all accessories embedded in the concrete and for the provision of holes, openings, etc., necessary to the execution of the work of the trades.

1.5 SUBMITTALS

A. Samples of all materials under this Division shall be supplied for testing as requested by the Owner.

B. Submit color additive manufacturer's color chart and sample chip(s), indicate color additive number and required dosage rate.

C. Submit two full-scale mock-up (minimum 3' by 3') sample panels of all concrete finishes and color. The samples shall include curing compound if any is to be used, and include an expansion joint and a score joint, as indicated on the Drawings. Approved samples shall be kept at the job site to serve as a prerequisite for all finishes until acceptance of the Work.

D. Submit one pint samples of aggregate for exposed aggregate finished concrete paving in color range as specified.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Supply ready mixed concrete throughout. Batch, mix and transport in accordance with ASTM C-94, "Specifications for Ready Mixed Concrete."

B. Mix and deliver concrete in quantities that will permit immediate use only.

C. Indiscriminate addition of water for any reason will be cause for rejection of the load.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Cement and aggregates shall have proven history of successful use with one another. Sources of cement and aggregate shall remain unchanged throughout work.

B. Mixes:

1. Ready-mixed concrete shall meet requirements of ASTM C94.

2. The Contractor shall perform tests or assemble the necessary data indicating conformance with specifications.

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3. For each mix, submit data showing that proposed mix will attain the required strength in accordance with requirements of CBC Section 1905A.3.
4. Instruct Laboratory to base mix design on use of materials specified and approved by the Owner's Representative.
5. Mix design shall include compression strength test reports per CBC Section 1905A.6.3.
6. Insure mix designs will produce concrete to strengths specified and of uniform density without segregation.
7. If mix yield exceeds 1-cubic yard, modify mix design to no more than one cubic yard, without changing cement content.
8. Introduction of calcium chloride will not be permitted.
9. Mix design shall be in accordance with CBC Section 1905A.3.

2.2 FORMWORK MATERIALS

- A. Panel or board forms for Exposed Finish Concrete: Minimum 5/8-inch thick exterior grade plywood with sealed edges, PS 1 grade Plyform Class I and II B-B Exterior.
- B. For Exposed Smooth Form-finished Concrete: Use Medium Density (or better) Overlaid Concrete Form Exterior (MDO), to provide continuous straight, smooth, exposed surfaces without grain patterns. Furnish in largest practicable sizes to minimize number of joints and to conform to a joint system as approved by Owner's Representative.
- C. Curbs may be formed with approved metal form systems.
- D. Chamfer Strips: Burke Concrete Accessories, PVC type CSF ½-inch or as otherwise shown, all exposed corners.
- E. Form Release Agent: Must not stain or otherwise adversely affect architectural concrete surfaces. "Nox-Crete Form Coating"; Industrial Synthetics Corp.'s "Synthex"; or equal.
- F. Form Ties: Burke "Penta-Tie," or equal, cone and rod type with 1-inch break-back.

2.3 REINFORCING MATERIALS

- A. Bar Reinforcement: ASTM A615.
 1. #3 and smaller: Grade 40.
 2. #4 and larger: Grade 60.
- B. Wire Fabric Reinforcement: ASTM A185. Size (6" by 6" / W1.4 By W1.4 (#10 ga. by #10 ga.)
- C. Recycled content shall be a minimum of 75% recycled post consumer steel.

2.4 CONCRETE MATERIALS

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- A. Portland Cement: ASTM C150, Type II. Use one brand of cement throughout project.
- B. Fly Ash: ASTM C618,08A.
- C. Aggregates: ASTM C33, materials from established sources with proven history of successful use in producing concrete with minimum shrinkage.
- D. Per City of Sausalito standards. Submit samples for approval as specified herein.
- E. Water: Clear and potable, free from deleterious impurities.
- F. Admixtures:
 - 1. Admixtures are optional; however, a water reducer or plasticizing admixture shall be included in the concrete mix and it must be compatible with color pigments where color pigments are required. Any proposed admixture shall comply with ASTM C494.
 - 2. Where more than one admixture is proposed, include statement from admixture manufacturer indicating that admixtures proposed for use are compatible, such that desirable effects of each admixture will be realized.
 - 3. Accelerating admixtures and admixtures containing more than 0.05 percent chloride ions are not permitted. If an accelerator is used, it shall be a non-chloride accelerator.
 - 4. Liquid admixtures shall be considered part of the total water.

2.4 CONCRETE MIXES

- A. Concrete mixes shall be approved and shall be in accordance with Caltrans Standard Specifications Section 90. Unless otherwise noted, mix shall contain not less than 550 pounds of cementitious material per cubic yard (Class "2", 3,000 psi,) Type II Portland cement and 3/4-inch maximum aggregate.
- B. Cementitious Material: An intimate blend of type II Portland cement and fly ash. Cementitious material shall include 15% maximum fly ash by weight unless the strength is specified to be achieved on 7 or 14 days.
- C. Lampblack: As supplied by batch plant for plain non-colored concrete work. Concrete for non-colored pavements shall be darkened by the addition of lampblack at the mixer. The proportion of lampblack or other approved colorant shall be that required to properly darken the concrete to reduce glare, and shall be subject to the approval of the Owner's Representative. Provide ¾ pound of lampblack per cubic yard of concrete unless required otherwise.

2.5 ANCILLARY MATERIALS

- A. Aggregate Base: Class II aggregate base conforming to Section 26 of the Standard Specifications and Subgrade Specifications herein.
- B. Expansion Joint Material

1.Fiber Expansion Joint: A non-extruding resilient filler, saturated with high quality bituminous materials having preserving characteristics. Conform to ASTM-D1751-04.

2.Caulked Expansion Joint: "Sonolastic Sealant Two-Part" as manufactured by Sonneborn-Contech, Building Products Division, Contech, Inc.; or approved equal. Joint caps or bond breaker tape to be as recommended by sealant manufacturer. Color shall match adjacent paving.

C. Dampproofing: Per CALTRANS Standard Specifications, Section 54.

D. Curing Materials for non-colored Concrete:

1. Waterproof Paper: ASTM C171, Type 1.1.1.1, regular. Same as Sisalkraft Division of St. Regis Paper Co.'s "Orange Label", or equivalent.

2. Impervious sheeting: 4 mil white polyethylene laminated to 10 oz. Burlap, ASTM C171, Type 1.1.3, fungus-resistant.

3. Curing Compound: ASTM C309. Product: Sealtight 1100 Clear-Series by WR Meadows, Burke Azua Resin Cure by Edocol, or equal that will not discolor concrete or affect bonding of other finishes applied thereafter, and which restricts loss of water to not more than 0.500 grams per sq. centimeter of surface when tested per ASTM C156, "Test Method for Water Retention by Concrete Curing Materials."

E. Grout: Premixed high strength non-shrink grout requiring only addition of water at the site. Burke's "Non-Ferrous, Non-Shrink Grout"; Master Builders "Masterflow 928 Grout", or equal.

F. Patching Mortar: Mix in proportions by volume of one part cement to two parts fine sand. Provide integrally colored patching mortar as required to match color and finish of colored concrete surfaces.

G. Abrasive Grains: Fused aluminum oxide granules or crushed emery containing not less than 50% aluminum oxide. Factory graded, rustproof, nonglazing and unaffected by cleaning materials. Subject to compliance with requirements provide one of the following: Sonneborn-Contech's "Frictex NS"; General Abrasive Co., Inc.'s "Fut-Sure"; The Exolon Co.'s "Exolon Anti-Slip"; or equal.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

B. Install all concrete work true to line and grade as indicated on the drawings.

C. Correct irregularities to the satisfaction of the Owner's Representative.

D. Plain non-colored, exposed concrete shall contain lampblack, approximately 3/4 pound of lampblack per cubic yard, as accepted by Owner's Representative.

E. The intent of the Grading Drawings is to provide positive drainage and to maintain slopes on walkways as required by the Americans with Disabilities act and California Title 24 throughout the project site. Notify the Owner's Representative immediately of any

discrepancies between the Drawings and actual field conditions and/or conflicts between the design and Code requirements.

3.2 PREPARATION

- A. Provide subgrade preparation and the base material installation complete, including clearing, grading, excavation, and filling and dewatering. Take every precaution to obtain a subgrade of uniform bearing power compacted to a minimum of 95% relative compaction as determined by the ASTM D1557 laboratory test procedure and in Sections 19 and 20 of the Caltrans Standard Specifications.
- B. Subgrade shall be kept moist and shall not be allowed to dry out before placement of concrete. Place no material on muddy subgrade.
- C. Aggregate base, where indicated, shall be placed and compacted in conformance with Caltrans Standard Specifications 26-1.04 and 26-1.05.
- D. Obtain approval of subgrade from Owner's Representative prior to placing steel and concrete.

3.3 FORMS

- A. Forms shall be constructed in accordance with ACI 318, Section 6.1 and shall be of sufficient strength and sufficiently tight to prevent visible distortion or leakage of mortar and fines.
- B. Forms for exposed surfaces shall be constructed to protect intended finish. Deflection of facing material between studs shall not exceed 0.0025 of the span. Facing material and pattern of joints shall be as approved by the Owner's Representative.
- C. For vertical surface of wall footings below grade, clean cut trench may be used in lieu of form if character of soil will permit installation without sluffing and width of concrete is increased at least 1 inch beyond indicated dimension of each face poured against earth.
- D. Curb and pavement edge forms shall extend full depth of concrete and shall be coordinated with installation of planting root barriers where required. Curves shall be formed with flexible metal or wood made up of thin laminations. Curve forms shall extend one stake space straight beyond tangent point. Where curbs and pavement are adjacent to areas to receive root barriers, provide smooth uniform edges. Remove any excess concrete as required to allow installation of root barriers without gaps between curbs and/or pavement and barriers.
- E. Maintain forms within the following tolerances.
 - 1. Top of Form: Plus or minus 1/8 inch in 10 feet and no abrupt variations; at required elevation to plus 3/8 inch.
 - 2. Face of Form: Plus or minus 1/4 inch in 10 feet longitudinal and no abrupt variations; perpendicular to surface plus or minus 1/8 inch.

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F. Form Ties: Align form ties as accepted by Owner's Representative. Obtain approval of form work from Owner's Representative prior to placing concrete.

G. Forms may be reused upon cleaning and coating with parting compound to ensure separation from concrete without damage.

3.4 REINFORCEMENT

A. All concrete shall be unreinforced unless specifically noted to be "reinforced."

B. Fabricate and place reinforcement as indicated on the Drawings and in accordance with ACI "Detailing Manual" SP-66. No reinforcement shall be placed prior to distribution of the approved shop drawings.

C. Secure reinforcement in position by suitable supports and by wiring at intersections with tie wire. Supports shall be of sufficient number and strength to resist crushing or displacement under full load. Metal shall not extend to surface of concrete.

D. At time of placing concrete, reinforcing shall be free of excessive rust, mill scale, or other bond reducing matter. Immediately before placing concrete, check and adjust position, support and anchorage.

3.5 CLEANING, PATCHING AND DEFECTIVE WORK

A. Where concrete is under strength, out of line, level or plumb, or shows objectionable cracks, honeycombing, rock pockets, voids, spalling, exposed reinforcement, signs of freezing or is otherwise defective, and, in the Owner's Representative's judgment, these defects impair proper strength or appearance of the work, the Owner's Representative will require its removal and replacement at the Contractor's expense.

B. Immediately after stripping and before concrete is thoroughly dry, patch minor defects, form-tie holes, honeycombed areas, etc., with patching mortar colored and textured to match concrete. Remove ledges and bulges.

C. Compact mortar into place and neatly file defective surfaces to produce level, true planes. After initial set, dress surfaces of patches mechanically or manually to obtain same texture as surrounding surfaces.

D. Rock Pockets:

1. Cut out to full solid surface and form key.
2. Thoroughly wet before casting mortar.
3. Where the Owner's Representative deems rock pocket too large for satisfactory mortar patching as described, cut out defective section to solid surface, and replace.

E. Cleaning

1. Insure removal of bituminous materials, form release agents, bond breakers, curing compounds, if permitted and other materials employed in work of concreting that

would otherwise prevent proper application of sealants, liquid waterproofing, and other delayed finishes and treatments.

2. Where cleaning is required, take care not to damage surrounding surfaces or leave residue from cleaning agents.

3.6 MIXING AND PLACING CONCRETE

A. Conform to applicable requirements set forth in Caltrans Standard Specifications Section 51-1.09 and Section 90.

B. Mixes for integrally colored concrete shall have pigment added early enough to ensure complete dispersal and uniform color, but not less than 15 minutes before placing.

3.7 JOINTS AND GROOVES

A. Plane of joints shall be perpendicular to surface. Where new pavements join existing, joints shall align.

B. Sawn Contraction Joints:

1. General: Provide where shown. Saw cut straight, true, and uniform, 1/8 –inch wide and not less than 1/4 of slab thickness in depth , unless otherwise noted. Cut with a power saw fitted with an abrasive or diamond blade.

2. Commence saw cutting operations after concrete has cured long enough to resist damage by the saw cutting operations and early enough to avoid random contraction cracks.

3. Contractor shall coordinate form removal and sequencing of adjacent concrete placement to minimize unnecessary saw cutting of adjacent surfaces.

4. Contractor shall plan for the use of varying types of saw cutting apparatus to provide acceptable finishes in areas limited in accessibility.

5. Fill saw cut over-runs and inadvertent saw cutting of adjacent surfaces with cement mortar to match color and finish of sawn pavement.

6. If joint pattern not shown, provide joints not exceeding 15 feet in either direction and located to conform to column centerlines, wall corners, etc. as accepted by Owner's Representative.

C. Tooled Joints / Score Joints

1. Form joints in fresh concrete using a jointer to cut the groove so that a smooth, uniform impression is obtained to 1/4 depth of pavement unless shown otherwise.

2. All joints shall be struck before and after brooming. Tool concrete both sides of joint.

D. Expansion Joints and Edging: Provided at the location and intervals as shown on the drawings, and at all locations where concrete paving abuts buildings, curbs or other structures, and not more than 18 feet on center. Specified and shown joint material shall be placed with top edge 1/8" below the paved surface, and shall be securely held in place to prevent movement. Joint and other edges shall be formed in the fresh concrete using an

edging tool to provide a smooth uniform impression. All edges shall be struck before and after brooming.

E. Sealed Joints: After the curing period, expansion joints shall be carefully cleaned and filled with approved joint sealant to just below adjacent paved surface in such a manner as to avoid spilling on paved surfaces or overflowing from joint.

3.8 FINISHING

A. Flatwork and Curbs

a. Float Finish (typical preliminary finishing for slabs to receive other finishes): The surface of the slab shall be screeded and all surface water and laitance removed. Floating shall be started as soon as the screeded surface has stiffened sufficiently. Floating shall be performed by hand using a wood float and shall be the minimum necessary to produce a relatively smooth, level, even-textured surface.

b. Heavy Broom Finish (typical for paving bands): After the slab has been float finished as described above, the surface shall be uniformly directional textured by coarse stable broom to match approved sample.

c. Medium Broom Finish: Obtain by drawing a stiff bristled broom across a floated finish for a nonslip surface. Perform brooming while concrete is still wet enough to receive broom marks to match approved sample. Direction of brooming to be perpendicular to direction of work or as otherwise shown on the drawings.

d. Brush Finish (typical for curbs): After the front form is removed, exposed surface shall be troweled smooth and then given a uniform light texture with fine brush parallel to line of curb, to match approved sample.

e. Sand Finish: Washed and finish shall be achieved by rubbing with bristle brush and flooding surface so that concrete fines are exposed slightly and resultant surface is similar to medium grit sandpaper.

f. Seeded Aggregate Finish: Evenly distribute specified aggregate over the surface with minimum surface voids. After the aggregate is thoroughly embedded, the surface shall be hand floated so that all aggregate is entirely embedded just beneath the surface. As soon as the concrete has achieved a firm set, begin simultaneously brushing and hosing with water so as to obtain a clean, uniform surface with no stone exposed more than 1/16". Care shall be taken so as to not dislodge or unevenly expose the seeded aggregate. Do not use a pressurized nozzle in washing the surface and avoid direct hosing of the surface.

g. Washed Exposed Aggregate Finish:

1) Place concrete using specified aggregate/concrete mix, screed tamp and bull float to desired elevation. A compatible water-reducing retarding admixture may be added in warm weather if desired. Apply surface retardant as soon as screeding and floating is complete.

2) If concrete is pumped into forms, lightly top seed surface of concrete with additional 3/8" size aggregate as required to match approved sample.

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- 3) Cover slab with acceptable curing cover to prevent drying out. If fog cure is employed, start no sooner than recommended by retardant manufacturer.
- 4) Check retarded surface at regular intervals to determine optimum time for removing retarded surface mortar.
- 5) Broom and wash aggregate surface to remove mortar to its optimum (approximately 1/8" to 1/16" at surface stone depth) to match sample.
- 6) After aggregate is exposed, proceed with proper curing.
 - h. Steel Trowel Finish: After surface water disappears and floated surfaces sufficiently hardened, steel trowel and retrowel to smooth surface. After concrete has set enough to ring trowel, retrowel to a smooth uniform finish free of trowel marks or other blemishes. Avoid excessive troweling that produces burnished areas.
 - i. Sandblast Finish: Perform in as continuous an operation as possible, utilizing the same work crew to maintain continuity of finish.
 - i. Use an abrasive grit of the proper type and gradation to expose the aggregate and surrounding matrix surfaces to match sample panel, as follows:
 1. Light Cut: approximately 1/16" depth
 2. Medium Cut: approximately 1/8" to 3/16" depth
 3. Heavy cut: approximately 1/4" to 5/16" depth
 - ii. Blast corners and edge of patterns carefully, using backup boards in order to maintain a uniform corner of edge line.
 - iii. Use same nozzle, nozzle pressure and blasting technique as used for sample panel.
 - iv. Maintain control of abrasive grit and concrete dust in each area of blasting. Clean up and remove all expended abrasive grit, concrete dust and debris at the end of each day of blasting operations.
 - j. Salt Finish: Screed, tamp and float concrete under normal installation procedures. While concrete is still in a plastic state, evenly dispense coarse grain rock salt over surface at the rate of 10 lbs. per 150 square feet to match approved sample. Carefully tamp and float in rock salt to depress it into concrete, but do not cover the salt grains. Allow concrete to set and cure thoroughly.
 - k. Abrasive Finish: tamp and float concrete under normal installation procedures. While concrete is still in a plastic state, evenly dispense specified Abrasive Grains over surface at the rate of 1/4 lb. per square foot. Care-fully tamp and float in Abrasive Grains to depress grains into concrete, but do not cover grains. Allow concrete to set and cure thoroughly under normal procedure.

3.10 – NOT USED

3.11 DAMPPROOFING

Mop apply one heavy coat of asphalt to a minus 2 inches below finished soil grade on soil side of retaining walls and planters.

3.12 CURING

A. Cure non-colored exposed concrete in accordance with Caltrans Standard Specifications Section 90-7.

B. When applying Curing Compound, apply after initial set of fresh concrete when bleed water has evaporated from surface using a "Hudson-type" airless sprayer in accordance with manufacturer's specifications.

C. Only water or curing compounds which impart no permanent color or gloss shall be used for curing concrete.

Compensation for conforming to these provisions shall be considered as included in the square foot unit price for Concrete Stair item, or the linear foot unit price for Concrete, or within the various items for post foundation cement. Full compensation for furnishing all the labor, materials, tools, equipment, incidentals, for doing all the work required of the various bid items for site concrete, complete in place, as shown on the Contract Documents and no additional compensation will be allowed

J. Bid Item 11. Soil Prep - Play Area/Patio Area

1. This bid item shall be paid per square foot. Payment of this item will prorated based on amount of work completed at time of payment request as determined by Owner with retention amount withheld as allowed by the contract Documents.
2. This bid item includes fine grading of site in Play area and Patio area. The finish grade of this item in the play area shall be at least 12" below finish grade shown on the plans. Finish grading shall include shaping of the land so as to allow surface drain sheet flow into drains located in seat walls at the perimeter of the play zone of the play apparatus. A permeable engineering fabric shall be placed on the play area prior to placement final playground surfacing. Material used to get to elevations submittals shall be Caltrans Class 2 Aggregate Base. Finish grading shall be compacted to approximately 90% of optimum density. The patio area shall be fine graded to a depth comparable to the thickness of the paver brick material to be used, roughly 3.5 inches below final grade as shown on the plans. Area drains may be installed and routed through and connected to retaining wall subdrains as warranted. Alternatively the drains can be routed to a manifold consisting of approximately 35 lf of 3 inch pipe running parallel to the easterly boundary retaining wall with through wall outlets spaced approximately 7 feet apart; furnishing all equipment, materials and personnel associated therewith, and in accordance with these Specifications.

K. Bid Item 12 – Engineered wood Fiber

1. This bid item shall be paid per square foot. Payment will be based on the amount of work completed as determined by the Owner subject to withheld retention amount in accordance with these specifications.

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2. Furnishing and installing "Engineered Wood Fiber" Playground Surfacing. Wood Fiber shall be place on top of previously prepared subgrade with engineering fabric over the finished subgrade. Engineered Wood fiber shall be no less than 12 inches deep and shall conform to ASTM Standard F2223-10. Material shall be evenly placed to provide a uniform depth. Installation shall be per manufacturers recommendations; furnishing all equipment, materials and personnel associated therewith, and in accordance with these Specifications.

L. Bid Item 13 – Permeable Concrete Walkway

1. This bid item shall be paid per square foot. Payment will be based on the amount of work completed as at time of payment request as determined by the Owner subject to withheld retention amount in accordance with these specifications.
2. This bid item is about furnishing and installing permeable Portland cement concrete 4 inches thick for an walkway and ramp that conforms to the Standards and Guidance for Accessible Design and the Americans with Disabilities Act. Contractor shall provide owner mix design submittals for approval prior to placing material. The concrete shall have a tan color with specifics determined by creating sample squares the material. Finish shall be workmanlike and may be either broom finish or exposed aggregate final finish depending on sample results. Walkway shall have expansion joint every 50 feet and control joints placed no less than 5 feet apart. Compensation shall be for furnishing all equipment, materials and personnel associated therewith, and in accordance with these Specifications.

M. Bid Item 14 - Brick Patio Area

1. This bid item shall be paid per square foot. Payment will be based on the amount of work completed as at time of payment request as determined by the Owner subject to withheld retention amount in accordance with these specifications.
2. This bid item is about furnishing and installing brick patio area. Brick shall be McNear Red wirecut standard solid brick (8-1/8"x3-7/8"x2-7/16") or approved equivalent. Brick shall be laid out in the 45 degree herringbone pattern as shown on the plan and these specifications. Contractor shall be responsible for trimming bricks to conform to permeable concrete walkway edge and restraining curbing and string course. Brick shall be placed a layered bed consisting of approximately 1 inch of sand, 4 to 8 inches of compacted class 2 ½ inch maximum aggregate base compacted to 95% relative density, compacted subgrade. Geotextile type and brand subject to approval by the City prior to installing shall be place between layers. The bed shall have a cross slope of not less than 1% from the walkway to the edge. The base layer shall include a 4" area drain pipe in the vicinity of the edge curbing in a 6 to 8 inch wide trench with ¾ inch drain rock.

N. Bid Item 15 - Play Apparatus

1. This bid item shall be paid lump sum. Payment can be made in two installments. The first being 60% of the bid price to secure procurement of the equipment from a manufacturer. The second being the remaining 40% upon erection and installation per manufacturers recommendation including placement of footings. Payment will be based on the amount of work completed as at time of payment request as

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determined by the Owner subject to withheld retention amount in accordance with these specifications.

2. This item is about furnishing and installing three pieces of play equipment. A Swing set, a see-saw (a.k.a. teeter totter), and a slide. Approved designs are Columbia Cascade Pipeline Gullwing Swing Model # 1593-2, Columbia Cascade, color CASPAX-7 powder coat finish, black sling hangers; TimberForm Spring-Rider(a.k.a. see-saw) Model # 3870-02 RW, CASPAX-7 powder coat finish, red & white seats with red spring embedment mount; a composite Play Area piece consisting of Columbia Cascade 1956-6-21-PL-AL-M as shown in drawing No. P-10027-X dated 2-15-2010 modified to add No. 1614-53-PL Storefront countertop, No. 1614-46-02-PL Abacus, Schedule 40 Aluminum posts, with attachment hardware. ~~and Columbia Cascade 1667-5-93 Spiral Stairway with Handrail,~~ or approved equal. Equipment colors shall be per the approved color palette on file in City offices. Colors shall be actively verified and approved by City prior to ordering and subject to verification upon delivery. Correct placement of the place equipment is critical to having a safe playground. The plans show the location without interference. The apparatus position shall be laid-out (a.k.a. staked) by a licensed land surveyor and verified by the City prior to constructing play equipment footings. The expense of such layout shall be included price of the equipment. Play-equipment shall be installed per manufacturers recommendations.
- O. Bid Item 16 – Soil Prep – Planting Beds, Bid Item 17-Ground Cover(1 gal), Bid Item 18-Ground Cover (5 gal), Bid Item 19 – Shrubs, Bid Item 20 – Tree – 15 Gallon, Bid Item 21 Tree – 24” box
 1. The Soil Prep bid item shall be paid per square foot. Payment will be based on the amount of work completed as at time of payment request as determined by the Owner subject to withheld retention amount in accordance with these specifications.
 2. The contractor shall prepare the planting areas enable proposed plants to get established within a 6 month time period. See P. Below for specific about soil prep.
- P. Planting – a.k.a. Bid Items 17,18, 19, 20 – Ground Cover(bulbs to 1 gallon), Ground Cover (5 gallon), Shrubs (5 gallon), Tree (15 gallon), Tree (24” Box)
 1. This bid item shall be paid as follows:
 - Ground Cover(bulbs to 1 gallon) - per square foot,
 - Ground Cover (5 gallon) – Each,
 - Shrubs (5 gallon), - Each,
 - Tree (15 gallon), - Each,
 - Tree (24” Box) – Each;Payment will be based on the amount of work completed as at time of payment request as determined by the Owner subject to withheld retention amount in accordance with these specifications.

2. PART 1 - GENERAL

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1.1 DESCRIPTION

- A. Provide planting work and planting maintenance complete as shown on the drawings and as specified including staking and layout of the landscaping.
- B. Related work specified elsewhere includes:
 - 1. ROUGH GRADING
 - 2. SOIL PREP – PLANTING BEDS

1.2 QUALITY ASSURANCE

- A. Reference Standards:
 - 1. Ordinances and Regulations: All local, municipal and state laws, codes and regulations governing or relating to all portions of this work are hereby incorporated into and made a part of these Specifications. Anything contained in these Specifications shall not be construed to conflict with any of the above codes, regulations or requirements of the same. However, when these Specifications and Drawings call for or describe materials, workmanship or construction of a better quality, higher standard than is required by the above mentioned codes and regulations, the provisions of these Specifications and Drawings shall take precedence. Furnish without extra charge additional materials and labor required to comply with above rules and regulations.
 - 2. "Sunset Western Garden Book," Lane Publishing Co., Menlo Park, California; current edition.
 - 3. "American Standards for Nursery Stock," American Association of Nurseryman, 230 Southern Building, Washington, D.C. 20005.
 - 4. Alameda Countywide Clean Water Program (ACCWP) or member agency having jurisdiction over the project work.
 - 5. US Composting Council Compost analysis Program (CAP)
 - 6. Test Methods for the Evaluation of Composting and Compost (TMECC)
 - 7. Manufacturer's recommendations.
- B. Qualifications:
 - 1. Experience: Assign a full-time employee to the job as foreman for the duration of the Contract who is certified landscape technician, certification through CLCA or minimum of four (4) years experience in landscape installation and maintenance supervision, with experience or training in turf management, entomology, pest control, soils, fertilizers and plant identification.
 - 2. Labor Force: Provide a landscape installation and maintenance force thoroughly familiar with, and trained in, the work to be accomplished to perform the task in a competent, efficient manner acceptable to the Owner.
- C. Requirements:
 - 1. Supervision: The foreman shall directly supervise the work force at all times and be present during the entire installation. Notify Owner's Representative of all changes in supervision.
 - 2. Identification: Provide proper identification at all times for landscape maintenance firm's vehicles and a labor force uniformly dressed in a manner satisfactory to Owner's Representative.
 - 3. Planting soils and organic amendments shall meet the AACWP requirement for the stormwater treatment measures used with this project work.
- D. Plant Material Standards
 - 1. Quality and Size of Plants: Conform to the State of California Grading Code of Nursery Stock, No. 1 grade. Use only nursery-grown stock which is free from insect pests and diseases.
 - 2. Comply with federal and state laws requiring inspection for plant diseases and infestations. Submit inspection certificates required by law with each shipment of plants, and deliver certificates to the Owner. Obtain clearance from the County Agricultural Commissioner as required by law, before planting plants delivered from outside the County in which planted.

E. Testing Agency: Soil and Plant Laboratory, Inc. 352 Matthew Street (P.O. Box 153), Santa Clara, CA 95052; Tel. (408) 727-0330; or Root Zone Associates, P.O. Box 18911, San Jose, CA 95118; Tel. (408) 264-7024. Components of the test shall include all major nutrients, pH, salinity, boron, sodium, micronutrients, copper, zinc, manganese and iron, adsorption rate, organic content and texture.

F. Weed Germination: Following soil preparation and fine grading of planting areas, irrigate the planting areas to germinate any weed seeds for a minimum period of 21 days. Maintain the soil in a damp condition for a minimum depth of 4 inches. Following approval of the weed germination by the Owner's Representative, spray kill the weeds using a short lived systemic weed killer that will not affect subsequent planting. Confirm the weed kill and allow the soil to dry out to optimum degree for planting prior to planting.

1.2 SUBMITTALS,

A. Product Data: Manufacturer's current catalog cuts and specifications of the following:

1. Fertilizers
2. Herbicide
3. Tree Tie and Stake
4. Iron Sulfate
5. Tree Guy Material
6. Filter Fabric
7. Perforated Drain Pipe
8. Erosion Control Netting
9. Steel Edging
10. Header Board
11. Root Barrier

B. Samples: Submit following samples along with certificates of compliance/analytical data from approved laboratory for degree of compliance:

1. Plants: Submit typical sample of each variety or entire quantity to site for approval by Landscape Architect.
2. Organic Mulch: Submit 1-pint sample.
3. Rock Mulch: Submit 1-pint sample(s).
4. Organic (Soil) Amendment: Submit 1/2-pint sample.
5. Permeable Backfill (Filter Rock): Submit 1-pint sample.
6. Imported Planting Soil: Submit 1-pint sample

C. Delivery Receipts: Provide delivery receipts for quantities of organic soil amendments delivered to the site.

D. Topsoil Analysis: After approval of rough grading and topsoil placement, obtain three representative samples of in situ topsoil taken from accepted site locations at depth of 4" to 6" below finish grade and submit to an accredited Soils Laboratory for "agricultural suitability" analysis report, including particle size, and evaluation of physical and chemical properties of soil and recommendations for adding amendments and fertilizers to the soil.

E. Subsoil Analysis: Besides the above required soil samples, take one representative sample of any subgrade soil that is to receive a layer of imported planting soil over it. The laboratory

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report shall include the subgrade soil's total combined silt and clay content for determining the total allowable combined silt and clay content of the imported planting soil specified herein.

F. Imported Planting Soil Analysis: See Imported Planting Soil Analysis requirements elsewhere in this specification for comparison to existing soil analysis.

G. Approval of Laboratory Report: Upon approval of the Laboratory's report by the Landscape Architect, the recommendations in the report shall become a part of the Specifications and the quantities of soil amendment, fertilizer and other additives shall be adjusted to conform with the report at no additional cost to the owner. Request Testing Laboratory to send one copy of test results directly to Landscape Architect and one copy to the Owner. Note that there is a minimum quantity of organic amendment specified elsewhere in this specification section.

1.3 PROJECT/SITE CONDITIONS

1. Site Visit: At beginning of work, visit and walk the site with the Owner's Representative to clarify scope of work and understand existing project/site conditions.

1.4 WARRANTY AND REPLACEMENT

A. Pre-Emergence Weed Killer: Warrant the work against weed growth for a period of four (4) months after application.

B. Warrant all plants and planting to be in a healthy, thriving condition until the end of the maintenance period, and deciduous trees beyond that time until active growth is evident.

C. Replace all dead plants and plants not in a vigorous condition immediately as directed by the Owner's Representative at Contractor's expense. Install replacement plants before the final acceptance at the size specified.

D. Warrant all plant material for a period of one year after final acceptance of the maintenance period against plant materials with defects at the time of installation.

E. Warrant plant installation and maintenance by Contractor against defects for a period of one year.

PART 2 - PRODUCTS

2.1 PLANTS

A. Plant the variety, quantity and size indicated. The total quantity tabulated on the drawings are considered approximate and furnished for convenience only. Contractor shall perform his/her own plant quantity calculations and shall provide all plants shown on the Drawings.

B. Tag plants of the type or name indicated and in accordance with the standard practice recommended by the American Association of Nurserymen.

C. Install healthy, shapely and well rooted plants with no evidence of having been root-bound, restricted or deformed.

D. Take precautions to ensure that the plants will arrive at the site in proper condition for successful growth. Protect plants in transit from windburn and sunburn. Protect and maintain plants on site by proper storage and watering.

E. Substitutions will not be permitted, except as follows:

1. If proof is submitted to the Landscape Architect that any plant specified is not obtainable, a proposal will be considered for use of nearest equivalent size or variety with an equitable adjustment of contract price.

2. Substantiate and submit proof of plant availability in writing to the Landscape Architect within 10 days after the effective date of Notice to Proceed.

F. Tree Form: Trees shall have a symmetrical form as typical for the species/cultivar and growth form.

1. Central Leader for Single Trunk Trees: Trees shall have a single, relatively straight central leader and tapered trunk, free of co dominant stems and vigorous, upright branches that compete with the central leader. Preferably, the central leader should not have been headed; however, in cases where the original leader has been remove, an upright branch at leas ½ the diameter of the original leader just below the pruning point shall be present.

2. Potential Main Branches: Braches shall be evenly distributed radially around and appropriately spaced vertically along the trunk, forming a generally symmetrical crown typical for the species.

3. Headed temporary branches should be distributed around and along the trunk as noted above and shall be no greater than 3/8" diameter, and no greater than ½ diameter of the trunk at point of attachment.

G. Tree Trunk

1. Trunk diameter and taper shall be sufficient so that the tree will remain vertical without the support of a nursery stake.

2. Trunk shall be free of wounds (except properly-made pruning cuts), sunburned areas, conks (fungal fruiting-bodies), wood cracks, bleeding areas, signs of boring insects, galls, cankers and/or lesions.

3. Tree trunk diameter at 6" above the soil surface shall be within the diameter range shown for each container size below, except where shown otherwise:

Container	Trunk Diameter in inches	Soil level from Container Top
5 gallon	0.5" to 0.75"	1.25 to 2"
15 gallon	0.75" to 1.0"	1.75 to 2.75"
24" Box	1.5" to 2. 5"	2.25 to 3"

4. Tree trunks shall be undamaged and uncut with all old abrasions and cuts completely callused over. Do not prune plants prior to delivery.

H. Tree Roots

1. Trunk root collar (root crown) and large roots shall be free of circling and/or kinked roots. Contractor may be required to remove soil near the root collar in order to verify that circling and/or kinked roots are not present.

2. The tree shall be well rooted in the container. When the trunk is lifted the trunk and root system shall move as one and the rootball shall remain intact.

3. The top-most roots or root collar shall be within 1" above or below the soil surface. The soil level in the container shall be within the limits shown in above table.

4. The rootball periphery shall be free of large circling and bottom-matted roots.

5. On grafted or budded trees, there shall be no suckers from the root stock.

I. Shrubs

1. Each shrub must stand upright without support.

2. All container shrubs shall be free of girdling roots, defined as those roots greater than 1/8" diameter circling the periphery of the rootball. The top of the rootball shall be free of "Knees" (roots) protruding above the soil, and the bottom shall be free of matted roots.

J. Measure trees and shrubs with branches in normal position. Height and spread dimensions indicated refer to the main body of the plant, and not from branch tip to tip.

2.3 FERTILIZERS

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A. Commercial fertilizer, pelleted or granular form, conform to the requirements of Chapter 7, Article 2, of the Agricultural Code of the State of California for fertilizing materials as follows:

Type A: 6% Nitrogen, 20% Phosphorus Acid and 20% Potash, (6-20-20).

Type B: 21 gram planting tablets 20% Nitrogen, 10% Phosphoric Acid and 5% Potash (20-10-5) available from Agriform or 10gm BestPacks packets 20% Nitrogen, 10% Phosphoric Acid and 5% Potash (20-10-5) available from Best Fertilizer Co.

Type C: Complete fertilizer 21% Nitrogen, 7% Phosphoric Acid and 14% Potash (21-7-14).

If commercial fertilizer having this analysis is not obtainable, other similar commercial fertilizer may be used providing it meets the approval of the Landscape Architect.

B. Maintenance Fertilizer: Type C

C. Sod Fertilizer: Provided by grower.

2.4 ORGANIC AMENDMENT FOR IN SITU SOILS (ON-GRADE):

A. Ground Redwood or Ground Fir Bark with the following properties:

<u>Percent Passing</u>	<u>Sieve Designation</u>		
100	9.51 mm	3/8"	
50-60	6.35 mm	1/4"	
20-40	4.76 mm	No. 4	
0-20	2.38 mm	No. 8	8 mesh

Redwood Sawdust

1. Dry bulk density, lbs. per cu. yd., 260-280
2. Nitrogen stabilized - dry weight basis, min. 0.4%
3. Salinity (ECe): 4.0 maximum
4. Organic Content: 90% minimum
5. Reaction (pH): 4.0 minimum

Ground Fir and/or Pine Bark

1. Dry bulk density, lbs. per cu. yd., Min. 350
2. Nitrogen stabilized - dry weight basis, min. 0.5%
3. Salinity (ECe): 4.0 maximum
4. Organic Content: 90% minimum
5. Reaction (pH): 4.0 minimum

B. Submit sample along with analytical data from an approved laboratory for degree of compliance to the Landscape Architect within two weeks after award of Contract.

2.5 COMPOSTED YARD WASTE AMENDMENT:

A. The above Ground Redwood or Ground Fir Bark or Ground Pine Bark (ORGANIC AMENDMENT FOR IN SITU SOILS) is the specified organic amendment material required. Acceptance of Composted Yard Waste Amendment in lieu of the above specified ORGANIC AMENDMENT FOR IN SITU SOILS (ON-GRADE) material will be considered if the in situ planting soil salinity and soil structure is favorable for the inclusion of recycled yard waste organic matter, as approved by the Landscape Architect. It is the Contractor's responsibility to secure test samples of

both the planting soil and the proposed composted yard waste amendment (2 quart samples) and submit to Soils and Plant Laboratory for evaluation and recommendations per code A05-1 for the soil sample and A91-0 for the amendment sample. The composted yard waste amendment sample shall be a grab sample from the currently available material.

B. Based on the Soils and Plant Laboratory evaluation, the addition of composted yard waste amendment shall not be acceptable if it creates a leaching requirement. The addition of the compost shall result in a final ECe of the amended soil of less than 4.0 dS/m @ 25 degrees C. as determined in a saturation extract. 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.

DESIRED USE RATE	MAXIMUM ALLOWABLE ECe INCREASE FROM AMENDMENT			
Cu. Yds. Amendment Per 1000 Sq. Ft. for Incorporation to 6" depth	Volume percentage of amendment	1 dS/m	2 dS/m	3 dS/m
		Maximum ECe of Compost		
1	5	14	28	42
2	11	7	14	21
3	16	5	9.5	14
4	22	3.5	7	10.5
5	27	3	5.5	8.5
6	32	2.5	4.5	7

Example: Specification calls for 6 cu. Yrds. Compost per 1000 sq. ft. for incorporation to 6" depth, and site soil has an ECe of 2.0. In order to avoid exceeding ECe of 4 in final blend, compost ECe shall be less than 4.5 dS/m.

C. Composted Yard Waste Soil Amendment properties as follows:

1. Gradation:

<u>Percent Passing by weight</u>	<u>Sieve Designation</u>		
90		1/2"	
85-100	9.51 mm	3/8"	
50-80	2.38 mm	No. 8	8 mesh
0-40	500 micron	No. 35	32 mesh

2. Organic Content: Minimum 50% based on dry weight and determined by ash method.

Minimum 250 lbs. organic matter per cubic yard of compost.

3. Carbon to nitrogen ratio: Maximum 35:1 if material is claimed to be nitrogen stabilized.

4. pH: 5.5 – 8.0 as determined in saturated paste.

5. Soluble Salts: See B. above.

6. Moisture Content: 35-60%.

7. Contaminants: The compost shall be free of contaminants such as glass, metal and visible plastic.

8. Maturity: Physical characteristics suggestive of maturity include:

a. Color: Dark brown to black.

b. Acceptable Odor: None, soil-like, musty or moldy.

c. Unacceptable Odor: Sour, ammonia or putrid.

d. Particle Characterization: Identifiable wood pieces are acceptable but the balance of the material shall be soil-like without recognizable grass or leaves.

D. Submit planting soil and composted yard waste amendment samples along with laboratory report from Soils and Plant Laboratory for degree of compliance as specified above to the Landscape Architect a minimum of 3 weeks prior to beginning soil prep. The laboratory report shall include recommendations for adjusting fertilizer and amendment quantities. Upon approval of the Laboratory's report by the Landscape Architect, the recommendations in the report shall become a part of the Specifications and the quantities of soil amendment and fertilizer shall be adjusted to conform with the report at no additional cost to the owner.

2.7 IRON SULFATE: Dry form.

2.8 PLANT BACKFILL: Except for acid loving plants (Azaleas, Rhododendrons, Ferns, Camellias, etc.), use a mixture of 2 parts soil from the hole, and 1 part amendment with iron added at the following rates:

1/4 cup	1 gallon can plants	-	iron,
	5 gallon can plants	-	iron,
1/3 cup	15 gallon can plants	-	iron,
1/2 cup			
24" box and larger	- iron, 1 cup		

Mix the iron, amendment and soil thoroughly for use in the top 8 inches of backfill around plants. For acid loving plants, mixture to be 1/2 soil from the hole and 1/2 amendment.

2.9 MULCH

A. Organic Mulch: Fir tree or pine tree bark, dark in color; 3/4-inch to 1-inch size.

B. Rock Mulch: Hard, durable, crushed stone, average 1/4-inch diameter, in gray color range from American Soil Products or approved equal.

C. Submit samples of organic and rock mulches to the Landscape Architect for approval within two weeks of award of Contract. Resubmit until acceptable to Owner, at no extra cost.

2.10 TREE SUPPORT POLES (ON-GRADE): Peeled lodge pole pine logs, clean, smooth, new, and sized as follows:

A. Two-inch (2") diameter by eight feet (8') long for trees less than 8' high and 1" caliper.

B. Three-inch (3") diameter by eight to ten feet (8' - 10') long for trees greater than 8' high and 1" caliper.

2.11 TIES: Rubber strap, 24-inch minimum length without sharp edges adjacent to trunk, V.I.T. cinch-tie, Dublin, CA, (818)882-9530, or approved equal.

2.12 TREE GUYING:

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- A. For trees up to 3" caliper, 3/16" galvanized steel cable, with rubber tree collar, 12" minimum long, and secured with cable clamp, and attached to anchor for below-grade location, Duckbill Model 40 DTS, or approved equal.
- B. For trees 3" to 6" caliper, 1/8" galvanized steel cable with rubber tree collar, 21" minimum long, and secured with cable clamp, 3" take-up eye to eye turnbuckle, and attached to anchor for below-grade location, Duckbill Model 68 DTS, or approved equal.

2.13 PLANTING SOIL (TOPSOIL):

- A. Planting soil is defined as on-site surface soil. Satisfactory planting soil shall be free of subsoil, clay, lumps, stones, and other objects over 4" in diameter, and without weeds, roots, and other objectionable material.
- B. Strip planting soil to whatever depths encountered, a maximum of 12" inches in a manner to prevent intermingling with the underlying subsoil or other objectionable material. Topsoil stripping is limited to area outside "Drip Line" of existing trees to remain and areas indicated on drawings and as approved by the Owner's Representative.
- C. Remove heavy growths of grass from areas before stripping.
- D. Stockpile topsoil in storage piles in areas shown, or where designated by Owner. Construct storage piles to freely drain surface water. Cover storage piles if required to prevent windblown dust.
- E. If herbicide contamination is suspected then a radish/ryegrass growth trial must be performed. Consult with Landscape Architect prior to decision to test or not.
- F. If sufficient on-site surface soil is not available, provide imported planting soil as specified below. Placement of dissimilar soils shall be coordinated with irrigation system valving to maintain separate valves for dissimilar soils.

2.14 IMPORTED PLANTING SOIL (TOPSOIL):

- A. Imported planting soil shall be fertile, friable, natural, productive soil containing a normal amount of humus, and shall be capable of sustaining healthy plant life. Planting soil shall be free of subsoil, heavy or stiff clay, rocks, gravel, brush, roots, weeds, noxious seeds, sticks, trash, and other deleterious substances. Soil shall not be infested with nematodes or with other noxious animal life or toxic substances. Soil shall be obtained from well-drained, arable land, and shall be of an even texture. Soil shall not be taken from areas on which are growing any noxious weeds such as Morning Glory, Sorrel, or Bermuda Grass.
- B. Imported planting soil shall have a pH value of between 6.0 and 7.5, a boron concentration of the saturation extract of less than 1 ppm, salinity of the saturation extract at 25 degrees C. of less than 4.0 millimoles, and a sodium absorption rate (SAR) of less than 8.
- C. The silt and clay content of imported planting soil shall not exceed that of the existing soil it is to be placed over. It shall be a "Sandy Loam" as classified in accordance with USDA Standards with a combined total of between 25% to 40% Clay and Silt.

D. Make the site of the source of supply of planting soil available to the Landscape Architect for observation and approval prior to any hauling or placing of soil. In addition, submit for approval a 1-quart sample of soil, together with a standard soil analysis report by an accredited soils analyst showing chemical analysis stating source, fertility, agricultural suitability and particle size distribution of the soil. Deliver the sample to the Landscape Architect two weeks before starting the contemplated hauling of the soil. Following approval of the sample, provide a one-half cubic yard sample, which shall be stored at the site of work for comparison with subsequent loads of soil. The comparison sample shall be protected by a cover until the furnishing of all soil has been completed and accepted. Should the soil submittal lack certain requirements which can be added to the soil, the Landscape Architect will consider a request by the Contractor to amend the soil as recommended by the Soils Analyst at the Contractor's expense.

2.15 PRE-EMERGENCE WEED KILLER: Clean non-staining as recommended by a licensed pest control specialist.

2.16 FILTER FABRIC: Polyester or polypropylene non-woven filter fabric with uniform fiber distribution by "Terra Bond" #1115, "Mirafi, Inc." #140N, or approved equal.

2.17 PERFORATED DRAIN PIPE: Polyvinyl Chloride (PVC) pipe and pipe fittings shall meet extra strength minimum of SDR-35 of the requirements of ASTM Specification D3034. Perforated and non-perforated corrugated polyethylene pipe, 3- to 10-inch diameter, shall meet the requirements of ASTM D883 and ASTM F412, and shall conform to Section 68 of the Standard Specifications.

1. Corrugated polyethylene pipe fittings shall comply with all requirements of AASHTO M-252-85I for 3- to 10-inch diameter pipe. Couplings shall be split or snap-on type for perforated pipe and split couplings with gaskets for non-perforated pipe. Cutting pipe with integral couplings will not be allowed.
2. Corrugated polyethylene pipe and fittings manufactured by Advanced Drainage Systems, Inc., shall be considered the standard to determine compliance to this specification.

Inspection Tube Cap: Paint cap one coat chocolate-brown color using Flat, exterior grade latex paint as accepted by Owner's Representative.

2.18 PERMEABLE BACKFILL (FILTER ROCK): Permeable backfill used in subsurface drain installations to be Class 2 permeable material in conformance with Section 68 "Subsurface Drains" of the Standard Specifications; gradation to 3/4" maximum size. Submit Sample for approval.

2.19 EROSION CONTROL NETTING: New, with a uniform, open plain-weave, flame-retardant mesh. The mesh shall be natural brown-tan and made from unbleached single jute yarn. The yarn shall be of loosely twisted construction and shall not vary in thickness by more than one-half its normal diameter. Furnish jute mesh in rolled strips to meet the following requirements:

1. Width: 48 inches, with a tolerance of one-inch wider or narrower.
2. Not less than 78 warp ends per width.
3. Not less than 41 weft ends per yard.
4. Weight shall average 1.22 pounds per linear yard, with a tolerance of 5 percent heavier or lighter.

2.20 VINE TIES: For vines that require supports in order to climb, install anchor bolts with clear vinyl coated 3/16" galvanized steel cable, secured and taut with cable clamps, on structure in configuration approved by Landscape Architect. Train vine branches to supports with green nursery tape.

2.21 ARBOR-GUARD: AG 8-4 as manufactured by Dimex (800/334-3776), or approved equal.

2.22 STEEL EDGING: 3/16" X 4" by 8' black finish with 12" min long stakes set 1/2" below grade at each joint and maximum 4' spacing, in-line joints without offset or double thickness, by Sure-Loc, (800) 787-3562 or approved equal.

2.23 HEADER BOARD: 2 by 6 inch "Rough" Construction Heart Redwood with 2 by 4 by 15" Construction Heart Redwood stakes.

2.24 ROOT BARRIER: UB 18-2 as manufactured by Deep Root Corporation (800)458-7668, Root Solutions, Inc. (800) 554-0914, or equal.

PART 3 - EXECUTION

3.1 FINE GRADING AND SOIL PREPARATION

A. General: Soil in all planting areas shall be moist, but not so moist that it sticks to a hand shovel, and loose and friable to a minimum depth of 12 inches with a relative maximum compaction of 85%. Rip and scarify and dry any areas that do not meet this requirement.

B. Lime Treated Soil Removal: All Lime treated soils shall be removed full depth from planting areas and replaced with approved planting soil as accepted by Owner's Representative and as shown.

B. Planting Soil Placement: EARTHWORK Section

C. Planting Soil Placement:

1. Inspect planting areas and remove all base rock and other foreign material. Rip all planting areas in two directions full depth of compacted fill (to a minimum of 6 inches) into undisturbed native soil prior to backfilling. Scarification of any planting area which cannot be accomplished with a tractor shall be accomplished by an alternative method approved by the Owner's Representative to the specified depth to ensure proper drainage.

2. Prior to placing planting soil secure the Owner's Representatives acceptance of the planting areas subgrade condition. After acceptance of the planting areas subgrade condition, uniformly distribute and spread planting soil backfill over scarified subgrade as specified in planting areas and compact to a maximum of 85% relative compaction.

3. Do not work planting soil in a wet or muddy condition or dump or spread in areas where subgrade is not in proper condition.

4. Water settling, puddling, and jetting of fill and backfill materials as a compaction method is not acceptable.

5. Provide a minimum of 12" depth in planting areas, or more where shown or specified otherwise.

D. Planting Soil Placement in Planting Islands and Adjacent to Pavement Areas: Provide planting soil as a final lift in all planting areas within and adjacent to paved areas and other

construction where native site soil has been covered by engineered fill and/or base rock. Remove all engineered fill, base rock and compacted subgrade full depth of compaction and replace with approved planting soil, a minimum lift of 12". Unless shown otherwise, finish grade in planting islands shall be crowned with a minimum 2 % pitch to the edges.

E. All planting areas soil shall be loose and friable prior to planting. Rip any overly compacted and re-compacted planting areas in two directions full depth of compacted soil prior to planting.

F. Before proceeding with the work: Carefully inspect all areas and verify all dimensions and quantities. Immediately inform the Landscape Architect of any discrepancy between the drawings and specifications and actual conditions and secure approval to proceed.

G. Planting operations shall be performed only during periods when beneficial results can be obtained. When excessive moisture or other unsatisfactory conditions prevail, the work shall be stopped until conditions are satisfactory.

H. Thoroughly wet down the planting areas to settle the soil and confirm irrigation coverage and operation. Allow soil to dry so as to be workable as described herein.

I. Drag to a smooth, even surface. Grade to form all swales, pitch to catch basins, streets, curb, etc., to ensure uniform surface drainage. Areas requiring grading include adjacent transition areas that shall be uniformly level or sloped between finish elevations. Refer to Erosion Control Netting below for treatment of slopes 3:1 and steeper.

J. Finish Grade: Hold finish grade and/or mulch surface in planting areas 1/2-inch below adjacent pavement surfaces, tops of curbs, manholes, etc. The subgrade of the mulch in mulched planting areas shall be a minus 2 inches for a distance of 12 to 18 inch from the edge of pavement. The remainder of the planting area shall be graded to receive the required 3 inch layer of mulch.

K. In Situ Soil Preparation:

1. Spread organic amendment, iron and Type A fertilizer evenly over installed and rough graded on-site topsoil in all planting areas including turf, ground cover and shrub areas at the following rates:

a. Organic Amendment: 6 cubic yards per 1,000 square feet

b. Fertilizer: Type A (6-20-20) at 20 lbs. per 1,000 square feet.

c. Iron Sulfate: 10 lbs. per 1,000 square feet

2. In the case of a contradiction between the quantity of organic amendment required by the Contractor-obtained soils laboratory analysis and the specified quantity shown above, the greater of the two quantities shall take precedence.

3. Rototill above additives into soil 6 to 8 inches deep. Keep iron sulfate off pavement and other surfaces to prevent rust staining. Correct all rust damage to work.

L. After the rototill work, float areas to a smooth, uniform grade as indicated on the drawings. Slope all planting areas to drain. Roll, scarify, rake and level as necessary to obtain true, even planting surfaces. Remove rocks, sticks and debris 2 inches or larger in size in turf areas and 3 inches or larger in shrub and ground cover areas. Secure approval of the grade by the Landscape Architect before any planting.

3.2 ROOT BARRIER: Install in continuous sheet parallel and adjacent to curb or pavement edge as required on drawings and in accordance with manufacturer's recommendations.

3.3 EROSION CONTROL NETTING: Verify finished grades and provide Jute Mesh and single grind Redwood bark mulch on all slopes 3:1 and steeper as accepted by the Owner's Representative. Install jute mesh loosely up and down the slope in accordance with manufacturer's specifications and as follows. Fit the soil surface contour and hold in place with 12-inch long, 11-gauge (minimum) steel wire staples driven vertically into the soil at 18- to 24-inch spacing. Jute mesh strips shall overlap along all edges at least 6 inches. Ends of side strips shall be buried into the soil at least 6 inches. Drive staples along edges to securely anchor mesh to ground.

3.4 ARBOR-GUARD: Install arbor guard on all trees in turf areas. Install according to manufacturer's specifications.

3.5 METAL EDGING: Install in continuous strips as indicated and in accordance with manufacturer's recommendations.

3.6 HEADER BOARD: Install in continuous, smooth alignment as indicated with stakes spaced 48 inches on center maximum and at all joints.

3.7 TREE AND SHRUB PLANTING

A. Mark tree and shrub locations on site using stakes, gypsum or similar approved means and secure location approval by the Landscape Architect before plant holes are dug. Review location of plants in relationship to irrigation heads and adjust location(s) that interfere with the function of the spray heads as accepted by the Landscape Architect prior to planting.

B. Test drainage of plant beds and pits by filling with water (minimum 6"). The retention of water in planting beds and plant pits for more than two (2) hours shall be brought to the attention of the Landscape Architect. If rock, underground construction work, tree roots, poor drainage, or other obstructions are encountered in the excavation of plant pits, alternate locations may be selected by Landscape Architect.

C. Excavate tree, shrub and vine pits as follows (Note square Tree Pit pattern required below):

<u>Excavation for</u>	<u>Width</u>	<u>Depth</u>
Boxed Trees	Box + 24"	Box depth
Canned Trees (15 gc)	Can + 18"	Can depth
Canned Shrubs/Vines (1 or 5 gc)	Can + 12"	Can depth

D. Square Tree Pits: Tree pits shall be dug in a square pattern with pit walls scarified to promote root penetration into surrounding soil. Drilled tree pits shall be modified to a square shape.

E. Break and loosen the sides and bottom of the pit to ensure root penetration and water test hole for drainage as required above.

F. Backfill plant holes with mix as specified, free from rocks, clods or lumpy material. Backfill native soil free of soil amendments under rootball and foot tamp to prevent settlement. Backfill

remainder of the hole with soil mix and place plant tablets or packets (Type B fertilizer) 3 inches below finish grade and 1/2-inch from roots at the following rates:

1 gallon can plant	-	1 tablet or packet
5 gallon can plant	-	3 tablets or packet
15 gallon can plant	-	6 tablets or packet
24-inch box plant	-	6 tablets or packet
36-inch box plant	-	8 tablets or packet

G. Carefully remove and set plants without damaging the rootball. Superficially cut edge roots vertically on three sides. Remove bottom of plant boxes before planting. Remove sides of boxes after positioning the plant and partially backfilling.

H. Set plants in backfill with top of the rootball 2 inches above finished grade. Backfill remainder of hole and soak thoroughly by jetting with a hose and pipe section. Water backfill until saturated the full depth of the hole.

I. Build 6" high watering basin berms around trees and shrubs to drain through rootball. Basins are not required around trees in turf areas.

J. Stake and/or guy trees as detailed. Drive stake until solid and remove excess stake protruding above top tree tie to prevent rubbing against branches.

K. Remove any soil from top of plant rootballs and secure Landscape Architect's approval of rootball height prior to mulching.

L. After approval of rootball height, install mulch as required below.

3.8 MULCH:

A. Except where rock mulch is required, mulch all tree, shrub and ground cover areas with organic mulch to a 3-inch depth, except adjacent to walkways where soil grade is 2 inches below top of pavement, mulch shall be 2 inches deep, and 2-inches deep where planting ground cover plants from flats. Hold bark mulch away from base (trunk) of plant 4" or as directed by the Landscape Architect. Individual trees and/or shrubs planted in non-irrigated areas shall, at minimum, receive bark mulch over their watering basin and berm. No mulch is required around trees in turf areas.

B. Install rock mulch to a [4-inch] depth where shown.

3.9 ROOT BARRIER: Install in linear fashion along and adjacent to the edges of the planting area as detailed or, if not shown, in accordance with manufacturer's recommendations. Set top of barrier approximately 1/2-inch above finished soil surface to allow concealment with mulch, as accepted by Owner's Representative.

3.10 GROUND COVER PLANTING: Plant in neat, straight, parallel and staggered rows as indicated on plan. Plant first row one-half required ground cover spacing behind adjacent curbs, structures, or other plant bed limits. Plant ground cover to edge of water basins of adjacent trees and shrubs.

3.11 PRE-EMERGENCE WEED KILLER: Apply pre-emergence weed killer in all areas to receive ground cover planting. Work shall be done under the supervision of a person licensed by the State

of California as a pest control applicator and holding a qualified applicator license or a Qualified Applicator Certificate. Obtain approval of the finish grades prior to applying weed killer and coordinate planting and watering with the pest control specialist prior to planting. Take care to keep weed killer off areas to be seeded.

3.12 WATERING: Water all trees, shrubs and ground cover immediately after planting. Apply water to all plants as often and in sufficient amount as conditions may require to keep the plants in a healthy vigorous growing condition until completion of the Contract. Do supplemental hand watering of trees and shrubs during the first 3 weeks of plant establishment.

3.13 MAINTENANCE OF PLANTING: Maintain plants from time of delivery to site until final acceptance of landscape installation.

3.14 PRE-MAINTENANCE PERIOD REVIEW AND APPROVAL OF PLANTING

A. Receive approval of the installed planting prior to commencement of planting establishment maintenance period. Notify the Landscape Architect a minimum of seven (7) days prior to requested review. Before the review, complete the following:

1. Complete all construction work.
2. Present all planted areas neat and clean with all weeds removed and all plants installed and appearing healthy.
3. Plumb all tree stakes.
4. Seed [sod] all turf areas.
5. No partial approvals will be given.

3.22 PLANTING ESTABLISHMENT MAINTENANCE

A. General Requirements:

1. Maintenance Period: The planting establishment maintenance period required shall be 120 calendar days after all planting is complete, turf is seeded, and installation approved. A longer period may be required if the turf is not thick, vigorous and even and has been mowed a minimum of 4 times, or if the plant material is not acceptably maintained during the maintenance period. The maintenance period may be suspended at any time upon written notice to the Contractor that the landscaping is not being acceptably maintained, and the day count suspended until the landscape is brought up to acceptable standards as determined by the Landscape Architect.

2. Planting establishment maintenance immediately follows, coincides with, and is continuous with the planting operations, and continues through turf installation, and after all planting is complete and accepted; or longer where necessary to establish acceptable stands of thriving plants.

3. Protect all areas against damage, including erosion, trespass, insects, rodents, disease, etc. and provide proper safeguards. Maintain and keep all temporary barriers erected to prevent trespass.

4. Keep all walks and paved areas clean. Keep the site clear of debris resulting from landscape work or maintenance.

5. Repair all damaged planted areas, and replace plants and reseed or resod turf immediately upon discovery of damage or loss.

6. Check sprinkler systems at each watering; adjust coverage and clean heads immediately. Adjust timing of sprinkler controller to prevent flooding.

7. Maintain adequate moisture depth in soil to ensure vigorous growth. Check rootball of trees and shrubs independent of surrounding soils and hand water as required.

8. Keep Contract areas free from weeds by cultivating, hoeing or hand pulling. Use of chemical weed killers will not relieve the Contractor of the responsibility of keeping areas free of weeds over 1-inch high at all times.

B. Tree, Shrub and Ground Cover Maintenance:

1. Maintain during the entire establishment period by regular watering, cultivating, weeding, repair of stakes and ties, and spraying for insect pests. Prune when requested by the Landscape Architect.

2. Keep watering basins in good condition and weed-free at all times.

3. Replace all damaged, unhealthy or dead trees, shrubs, vines and ground covers with new stock immediately; size as indicated on the drawings.

C. Non-irrigated Erosion Control Areas: To be watered by winter rains.

D. Fertilizing:

1. Upon approval and after submitting fertilizer delivery tags, maintenance fertilization shall begin 30 days after planting is complete. Fertilize all turf and ground cover areas by broad-casting Type C (21-7-14) fertilizer at the rate of 5 lbs. per 1,000 square feet evenly throughout. Reapply every forty-five (45) days until acceptable.

2. During the winter, for quick turf greening effect, calcium nitrate (15.5-0-0) may be applied at the rate of 6 lbs. per 1,000 square feet.

3. Early spring and fall substitute a complete fertilizer such as 15-15-15 applied at the rate of 6 lbs. per 1,000 square feet, to help insure continuing adequate phosphorus and potassium.

4. Apply ammonium sulfate fertilizer as necessary to maintain vigorous, green grass between fertilizings mentioned above.

5. Observe plant's color, and if a soil pH imbalance is suspected, take soil samples and obtain laboratory analysis for confirmation. Take necessary action recommended in laboratory analysis such as top dressing with soil sulfur, leaching soil, etc.

3.23 FINAL PLANTING REVIEW AND ACCEPTANCE

A. At the conclusion of the Maintenance Period, schedule a final review with the Owner, the Owner's maintenance person, and the Landscape Architect. On such date, all project improvements and all corrective work shall have been completed. If all project improvements and

corrective work are not completed, continue the planting establishment, at no additional cost to the Owner, until all work has been completed. This condition will be waived by the Owner under such circumstances wherein the Owner has granted an extension of time to permit the completion of a particular portion of the work beyond the time of completion set forth in the Agreement.

B. Submit written notice requesting review at least 10 days before the anticipated review.

C. Prior to review, weed and rake all planted areas, repair plant basins, mow and edge turf, plumb tree stakes, clear the site of all debris and present in a neat, orderly manner.

Full compensation for furnishing all labor, materials, tools, equipment, incidentals, and for doing all the work involved in the Planting category of work as shown on the plans these special provisions, and as directed by the Owner, and no additional payment will be allowed.

Q. Bid Item 22 – Fountain

1. This bid item shall be lump sum. Payment for this item will be prorated over the course of the Project based on percentage complete of the item.

2. This item includes removal a disposal of existing fountain and replacing with ADA compliant drinking fountain subject to the approval of the City prior to being procured, and furnished. The fountain drain shall be routed to a planting area subject to the approval of the City. Effort shall be made to set the depth of the drain to 18 inches below grade and slope at 2% or greater to a location where the drain can daylight at grade. The project site is currently served by a water line feeding the existing fountain to the extent that the water line is found to be sound and in compliance with current plumbing codes, the line can be reused. If found deficient the waterline shall be replaced in conformance with City and Marin Municipal Water District Standards including installation of backflow device(s) as required by codes. Fountain shall include a keyed hose bib to facilitate localized irrigation and cleaning. Alternatively the hose bib can be positioned at a separated location subject to the approval of the City.

R. Bid item 23 – Entrance Treatment including Gate

1. This bid item shall be lump sum. Payment for this item will be prorated based on percentage complete of this item.

2. This item consists of installing hog-wire gate and arbor consistent with the design and details shown on the plan. Hinges and latches shall be ADA compliant robust, durable and long lasting with specific products subject to the approval by the City prior to installing. The Gate shall be redwood or cedar, generally free of large knots treated with an environmentally friendly stain and wood protectant. Contractor shall submit wood finish information to City prior to applying.

S. Bid Item 24 – Staging Plan

1. This bid item shall be lump sum. Payment for this item will be prorated over the course of the Project based on percentage complete of all items.
2. This item consists of preparing a staging plan showing location of equipment and material that will be stored prior to being fully installed. The owner has not secure a project staging area so it will be incumbent for the Contractor to furnish equipment and materials that will be used on the day the work will be performed.

T. Bid Item 25 - Traffic Control

1. This bid item shall be lump sum. Payment for this item will be prorated over the course of the Project based on percentage complete of all items.
2. This bid item includes preparing detailed traffic control plans approved by the County of Marin; placing, adjusting and removing temporary traffic control measures, such as, but not limited to, flags, cones, barricades, crash barriers, signs, and flaggers (personnel dedicated to controlling and managing traffic), lighted arrow boards, signs, detours, lighting, pedestrian and traffic ramps, temporary striping, permanent striping, K-rails, pavement markers, traffic signal loops and temporary detection devices, and all incidentals necessary for worker, pedestrian and traffic protection, including furnishing all equipment, materials and personnel associated therewith, and in accordance with these Specifications.

U. Bid Item 4 – Concrete Retaining Wall(Add Alternate)

1. This item shall be paid per linear foot. Payment of this item will be made based on quantity of item as furnished and installed as of date of payment request as determined by Owner with retention withheld as allowed by the Contract Documents.
2. This bid item includes installing Retaining wall at the site perimeter as shown on the plans and as may be further detailed in attachments to these specifications. The Easterly and Southerly boundary shall be suitably prepared to accept a 6' high solid redwood fence as detailed on the plans. Though not anticipated retaining wall placed along the Northerly boundary should be prepared to accept a 42" high "hogwire" fence as detailed on the plans. This item includes furnishing and installing 4 inch perforated pipe subdrain that shall be imbedded in a ¾" drain rock with through wall weep holes spaced at approximately 10 feet intervals. Contractor shall verify fence post connection detail with Owner prior to installing the brackets and fasteners. Item includes furnishing all equipment, materials, and personnel therewith and in accordance with these plans.

V. Bid Item 26 Irrigation with Controller

1. This item will be paid per Lump Sum. Payment made shall be comparable to percentage of work item completed at time of payment request as determined by the Owner and the remaining amount on the final progress payment, with retention withheld as allowed

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by the Contract Documents.

2. This item includes furnishing and installing a drip irrigation system to be operated from believed to be existing 5/8 inch water service at the site. The system shall be controlled from a battery operated Rainbird or TBOS controller (of approved equivalent), installed below grade in a concrete box with a lockable cover. The water line shall be modified to install a backflow valve in conformance with Marin Municipal Water District standards and requirements. The system will include a quick coupler connection. The quick coupler shall be brass and attached to a galvanized riser that is linked to below grade water lines through a flexible coupling system subject to the approval of the City. The system shall also furnish and install a gate valve to allow the irrigation lines to be fully closed off from the water service.

2. PART 1 - GENERAL

1.1 DESCRIPTION

- A. The work in this section consists of furnishing, layout and installing an irrigation system.
- B. Related work specified elsewhere includes:
 - 1. Section 7-17.02 EARTHWORK
 - 2. Section 7-20.01 PLANTING

1.2 QUALITY ASSURANCE

- A. Manufacturer's Specifications: Follow manufacturer's current printed specifications and drawings in all cases where the manufacturers of articles used in the Contract furnish directions covering points not specified or shown in the drawings.
- B. Ordinances and Regulations: All local, municipal and state laws, codes and regulations governing or relating to all portions of this work are hereby incorporated into and made a part of these Specifications. Anything contained in these Specifications shall not be construed to conflict with any of the above codes, regulations or requirements of the same. However, when these Specifications and Drawings call for or describe materials, workmanship or construction of a better quality, higher standard, or larger size than is required by the above codes and regulations, the provisions of these Specifications and Drawings shall take precedence. Furnish without extra charge additional materials and labor required to comply with above rules and regulations.
- C. References, Codes and Standards:
 - 1. AB 325 State of California Model Water Efficient Landscape Ordinance.
 - 2. Water Use Classification of Landscape Species (WUCOLS).
 - 3. American Society of Irrigation Consultants (ASIC) Design Guidelines.
 - 4. California Landscape Standards, California Landscape Contractors Association, (CLCA) Sacramento, California.
 - 5. CAL-OSHA, title 8, Subchapter 4-Construction Safety Orders and Subchapter 7-General Industry Safety Orders.
 - 6. California Electric Code.
 - 7. California Plumbing Code (UPC) published by the Association of Western Plumbing Officials.
 - 8. NFPA 24, Section 10.4, Depth of Cover.
 - 9. Underwriters Laboratories (UL): Electrical wiring, controls, motors and devices, UL listed and so labeled.
 - 10. American Society of Testing Materials (ASTM).
- D. Furnish without extra charge any additional material and labor when required by the compliance with all above mentioned codes and regulations, though the work be not mentioned in these specifications or shown on the drawings.
- E. Reclaimed Water: Though use of reclaimed water is not anticipated, Contractor shall contact agency supplying reclaimed water prior to the commencement of installing the irrigation system to coordinate inspection of the work and to verify all codes and regulations regarding use of reclaimed water. Provide all required signage and other warnings.

F. Experience: Contractor shall provide a full-time employee to the job as supervisor for the duration of the completion of work item with a certified landscape technician, irrigation certification through CLCA or minimum of four (4) years experience in landscape irrigation installation.

G. Labor Force: Provide a landscape installation and maintenance force thoroughly familiar with, and trained in, the work to be accomplished to perform the task in a competent, efficient manner acceptable to the Owner's Representative.

H. Explanation of Drawings:

1. Due to the scale of the Drawings, it is not possible to indicate all offsets, fittings, sleeves, etc., which may be required. Carefully investigate the conditions affected all of the work and plan accordingly, and furnish all required fittings. Install system in such a manner to avoid conflicts with planting, utilities and architectural features.

2. Do not install the irrigation system as shown on the Drawings when it is obvious in the field that obstructions, grade differences or discrepancies in arc dimensions exist that might not have been considered in engineering. Bring such obstruction or differences to the attention of the Owner's Representative. In the event this notification is not given, the Contractor shall assume full responsibility for any revision necessary.

I. Trench Interference with Tree Root Systems:

1. Review with Owner's Representative where trenching may interfere with existing root systems and propose alternate trench locations to avoid or reduce damage to root systems.

1.3 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

A. The Drawings show, if applicable, existing above and below grade structures and utilities that are known to the Owner. Locate known existing installations before proceeding with construction operations that may cause damage to such installations. Existing installations shall be kept in service where possible and damage to them shall be repaired with no adjustment of Contract Sum. Verify with Owner if As Built drawings are available.

B. If other structures or utilities are encountered, request Owner's Representative to provide direction on how to proceed with the Work. If a structure or utility is damaged, take appropriate action to ensure the safety of persons and property.

C. Verify location of existing irrigation systems to be removed and replaced. Maintain any existing systems as required by the Drawings and Specifications, including temporary retention of systems necessary to maintain existing on site and adjacent planting.

1.4 SUBMITTALS

A. Materials List:

1. Submit required copies of the cut sheets and a complete list of materials proposed for installation, along with any proposed substitutions clearly identified and obtain the Owner Representative's written approval thereof before proceeding. Use only accepted materials and items of equipment.

2. List all materials by manufacturer's name and model number.

B. Substitutions:

1. If the Contractor desires to substitute a product, he shall list each item and note it as a "substitution" and provide the following information:

- a. Descriptive information describing its similarities to the specified product.
 2. If the product is approved and, in the opinion of the Owner's Representative, the substituted product does not perform as well as the specified product, the Contractor shall replace it with the specified product at no additional cost to the Owner.
- C. Manuals:
1. Prior to the final acceptance of the irrigation system, furnish three (3) individually bound Operation and Maintenance Manuals to the Owner's Representative for use by the Owner. The manuals shall contain complete enlarged drawings, diagrams and spare parts lists of all equipment installed showing manufacturer's name and address. In addition, each Service Manual shall contain the following:
 - a. Index sheet indicating the Contractor's name, address and phone number.
 - b. Copies of equipment warranties and certificates.
 - c. List of equipment with names, addresses and telephone numbers of all local manufacturer representatives.
 - d. Complete operating and maintenance instructions in sufficient detail to permit operating personnel to understand, operate and maintain all equipment.
 - e. Parts list of all equipment such as controllers, valves, solenoids and heads.
- D. Record Drawings:
1. Dimension the location of the following items from two (2) permanent points of reference such as building corners, sidewalks, road intersections, etc.:
 - a. Connection to existing water lines/meter.
 - b. Connection to electrical power.
 - c. Gate valves.
 - d. Routing of sprinkler pressure lines (a dimension at least every 100 feet and as required to identify all changes in direction and location).
 - e. Remote control valves.
 - f. Routing of control valves.
 - g. Quick coupling valves.
 - h. All sleeve locations.
 - i. Routing of all control wiring.
 - j. Include all invert elevations below 12".
 2. Deliver a reproducible record drawing to the Architect within seven (7) working days before the date of final review. Delivery of the record drawings shall not relieve the Contractor of the responsibility of furnishing required information in the future.
- E. Controller Plan:
1. Provide one Irrigation Diagram plan in each controller housing. The plan shall show the area controlled by each valve in different colors and for orientation, any major permanent structure such as buildings and roads.
 2. Charts to be waterproof and hermetically sealed between two pieces of transparent 10 mil thick plastic and installed in each controller on the door as accepted by the Owner's Representative no later than the time of the coverage test of the irrigation system.
- F. Maintenance Material - supply the following tools to the Owner:

1. Three (3) sets of specialized tools required for removing, disassembling and adjusting each type of sprinkler, valve or other equipment supplied on this project.
2. Two (2) keys for each type of equipment enclosure.
3. Two (2) keys for each type of automatic controller.
4. Two (2) quick-coupler keys and matching hose swivels for each type of quick-coupling valve installed.
5. All lock keys shall be keyed alike.
- G. Landscape Irrigation Audit: Upon completing the installation of the irrigation system, conduct an irrigation audit prior to beginning the maintenance period. Submit written report, recommended 12-month schedule and estimate of annual water consumption. Include a copy of this report in the Operation and Maintenance Manual.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Furnish and deliver materials in manufacturer's packaging, bearing original legible labeling.
- B. The Contractor is cautioned to exercise care in handling, loading, unloading, and storing PVC pipe and fittings. All PVC pipe shall be transported in a vehicle which allows the length of the pipe to lie flat so as not to subject it to undue bending or concentrated external load at any point. Any section of pipe that has been dented, cracked, or otherwise damaged shall be discarded and, if installed, shall be replaced with new piping.

1.6 SEQUENCING AND SCHEDULING

- A. Acceptance: Do not install main line trenching prior to acceptance by Owner's Representative of rough grades completed under another Section.
- B. Coordination: Coordinate with the work of other sections to insure the following sequence of events:
 1. Sleeves and Conduits: Installation of all sleeves and conduits to be located under paving and through walls prior to placement of those materials.
 2. Bubbler Heads: Install after placement of tree, but prior to backfill with planter soil mix.
 3. On-Structure Equipment: Install piping and risers after waterproofing is accepted.
 4. Sprinkler Head in Pots: Install riser and seal the penetration of the pot prior to backfill of pot with drainage materials and planter soil mix.
 5. Coordinate work schedule with Owner to avoid disruption of landscape maintenance of existing landscaping.
 6. Install piping prior to soil preparation (planting soil amendment installation).

1.7 WARRANTY

- A. In addition to manufacturer's guarantees and warranties, work shall be warranted for one (1) year from date of final acceptance against defects in material, equipment and workmanship. Warranty shall also cover repair of damage to any part of the premises resulting from leaks or other defects in materials, equipment and workmanship to the satisfaction of the Owner.
- B. Include a copy of the warranty form in the Operation and Maintenance Manual.

1.8 OPERATION

- A. Routine: Inspect and adjust all spray heads and control valves including raising or lowering of spray head heights to accommodate plant growth and weather conditions.
- B. Controller: Inspect regularly for power interruption and reset clock as required. Adjust station timing to accommodate changes in plant growth and weather conditions.
- C. System Failure: Perform all repairs within one (1) operating period. Replacements to match removed products and materials in all respects. Report promptly all damage not resulting from Contractor's operations. Repair all damage caused by Contractor at no expense to Owner.
- D. Climate Change: Set and program automatic controllers in response to seasonal requirements and requirements of newly planted materials.

PART 2 - PRODUCTS

2.1 PIPE

- A. Pressure Main Line Pipe and Fittings: All PVC fittings shall bear the manufacturer's trademark name, material designation, size, applicable I.P.S. schedule and NSF seal of approval.
- B. All main line pipe shall be solvent welded and shall be schedule 40 unless shown otherwise on the Drawings.
 - 1. PVC Pressure Rated Pipe: ASTM D2241 NSF approved Type I, Grade I, solvent welded PVC with an appropriate standard dimension ratio (S.D.R.).
 - 2. PVC Scheduled Pipe: ASTM D1785 NSF approved, Type I,
 - 3. Grade I, solvent welded PVC.
 - 4. PVC Solvent-weld Fittings: ASTM D2466 Schedule 40, 1-2, II-I NSF approved.
 - 5. Solvent Cement and Primer for PVC solvent-weld pipe and fittings: Type and installation methods prescribed by the manufacturer.
 - 6. Connections between Main Lines and RCVs: Schedule 80 PVC (threaded both ends) nipples and fittings unless required otherwise by local jurisdiction.
 - 7. Valves 2-inch and larger shall be flanged only.
 - 8. Copper pipe shall be Type K or Red Brass where threaded joints are required and Type L otherwise.
- C. All lateral line pipe shall be solvent welded and shall be schedule 40 unless shown otherwise on the Drawings.

2.2 CONTROLLER ENCLOSURES

- A. Type: Use one of the following (unless noted otherwise on the Drawings):
 - 1. Stainless steel, NEMA Type 3 rated, with back panel, padlocking hasp and padlock. See Detail for pedestal construction.
 - 2. Le Meur, (714) 822-5100.
 - 3. "Strong Box" available from John Deere, (800) 347-4272.

2.3 REMOTE CONTROL VALVE: - Not Used

2.4 BOX FOR REMOTE CONTROL VALVE: Not Used

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2.5 CONTROLLER GROUND

- A. Provide each pedestal controller with its own ground rod. Separate the ground rods by a minimum of eight feet. The ground rod shall be an eight foot long by 5/8" diameter U.L. approved copper clad rod or as recommended by controller manufacturer. Install no more than 6" of the ground rod above finish grade. Connect #8 gauge wire with a U.L. approved ground rod clamp to rod and back to ground screw at base of controller with appropriate connector. Make this wire as short as possible, avoiding any kinks or bending. Install within pedestal housing base unless otherwise noted.
- B. Provide each irrigation controller with its own independent low voltage common ground wire.

2.6 BATTERY OPERATED CONTROLLER(S): As shown on Drawings. TBOS by Rainbird or approved equal with IP-68 rated waterproof case.

2.7 CONTROL WIRES

- A. Connections between automatic controllers and the solenoid-operated electric control valves shall be made with direct burial copper wire 14- AWG-UF 600 volt (minimum size). Pilot wires shall be a color other than white, and shall be a different color for each automatic controller with wires sharing a common trench. Common wires shall be white in color, with a different color stripe for each controller with wiring sharing the same common trench. No stripe is required if multiple controller wiring is not present.
- B. Size of wire shall conform to the remote control valve manufacturer's specification for control wire sizes, but in no case shall the control wire be smaller than #14. Runs over 2,000 lineal feet shall be #12- AWG-UF 600 volt copper wire.
- C. All wire splices are to be made within a valve box, with a copper crimp-type connector, and a "3-M" #DBY splice kit.
- D. Use continuous control wiring between controllers and remote control valves (no splices).
- E. Provide polyurethane tag at valve solenoid control wire that shows the controller number and station number. Also refer to valve box lid identification.
- F. Provide a spare control wire in each RCV box for future.

2.8 BUBBLER HEADS

- A. Bubbler head shall be installed in a manner to provide adequate moisture to plants during establishment period. Bubblers install in a manner that do not pose trip hazard or other safety risk.

2.9 QUICK COUPLER VALVES:

- A. Quick coupler valves shall be installed in 10" diameter or equivalent square box and lid similar to isolation valve box described below. Quick Coupler valve shall be installed in a manner that minimizes stresses on the primary water supply line. There will be a flexible connection between the Quick Coupler and riser and the water supply line. The connection shall also be offset from the supply line.

2.10 ISOLATION VALVE:

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- A. Valves 3 inches and smaller: 125 lb. WSP bronze gate valve with screw-in bonnet, non-rising stem and solid wedge disc, NIBCO T-113 K, or approved equal. Valves shall be line size.

2.12 DRIP IRRIGATION

- A. Drip Manifold:
1. Pressure Regulator: Preset at 30 psi outlet pressure, ¾" female threaded inlet and outlet, by RainBird, Toro or equal.
 2. Emitters: Xeri-Bug (XB Series) by RainBird, Toro EZ Drip Series, or equal.
 3. Flexible PVC: ASTM D2287 algae-resistant flexible PVC as recommended by manufacturer of Drip Emitters.
 4. Drip tubing: Conform to A. S. A. E. standards for minimum inside diameter and wall thickness, Minimum 2% carbon black, Salco ¾" AR Drip PVC flexible drip hose, or equal.
 5. ¾" Y-filter, 200 mesh.
 6. Toro DL 2000 Air/Vacuum Relief Valves and In-line Spring Check Valves.
 7. ¾" manual PVC ball valve with extra 3' of hose coiled in valve box.
 8. Drip system in accordance with "RainBird Xerigation Low-Volume Landscape Irrigation Design Manual" and as shown on the drawings as required for a complete working system.

2.13 SUBSURFACE DRIP IRRIGATION:

- A. As specified herein and as shown on the drawings and in accordance with manufacturer's recommendations. Provide all miscellaneous valves, filters fittings etc. required for a complete, operable system including the following:
1. Emitters shall be Toro DL 2000 Techline, in-line Teflon impregnated emitter with Netafim Automatic Flush Valves, Toro DL 2000 Air/Vacuum Relief Valves in accordance with "Toro DL-2000 Low-Volume Irrigation Bidding Specifications and Design Details" and as shown on the drawings as required for a complete working system.
- B. Drip Valve Assembly: Size valve box large enough and deep enough to contain assembly and allow convenient access and easy removal of filter screen. Position filter pointed down, approximately 45 degrees.
- C. Pressure regulator: Size regulator in accordance with flow rate. Do not over size. Use factory pre-set regulator at 30 PSI.

2.14 BOX FOR ISOLATION VALVE: 10" diameter plastic, Ametek, Brooks, Christy with bolt down lid marked "irrigation," or accepted equal. Avoid locating valve in paved areas. Provide H/20 Loading concrete box with bolt-down concrete lid if valve is located in paved area. Obtain location approval by Owner's Representative.

2.15 SWING JOINTS

- A. Sprinklers and Bubblers: Use Dura, Lasco or equal pre-assembled swing joints with O-rings.
- B. Quick Coupling Valve: Dura 1-inch 1-A2-1-11-18 pre-assembled swing joint with O-rings and Dura quick lock to receive stabilizing rod.

2.16 BACKFLOW PREVENTION DEVICE

- A. As required by Code and as shown on Drawings. Verify with Owner if Anti-freeze Jacket is required and provide as required.
- B. Riser assemblies from main line burial depth to backflow preventers shall be Schedule 40 brass pipe.
- C. All metallic pipe and fittings installed below grade shall be painted with two coats of Koppers #50 Bitumastic, or approved equal. Pipes may be wrapped with an approved asphaltic tape in lieu of the liquid-applied coating.

2.17 BACKFLOW PREVENTION DEVICE ENCLOSURE

- A. "Smooth Touch" enclosure without sharp edges, by Strong Box, available from V.I.T., Escondido, CA (800) 729-1314 or equal. Coordinate size of enclosure with plumbing for minimum clearance and size. Enclosure to include hasp and staple to receive padlock. Padlock N.I.C.

2.18 CONDUIT/SLEEVES

- A. Sleeving shall be Schedule 40 PVC pipe sleeves and a minimum of two times the aggregate diameter of all pipes contained within the sleeve. Provide vertical sweep for all electrical conduit on each side of hardscape and terminate ends at 12" minimum depth and 12" from hardscape surface.

2.19 Y-STRAINER

- A. "Y"-Strainer upstream of remote control valves, Brass, 100 mesh.

2.20 RCV IDENTIFICATION TAGS: Plastic or brass tags with valve number, approximately 2" by 2" with number imprinted, as accepted by Owner.

2.21 MISCELLANEOUS INSTALLATION MATERIALS

- A. Solvent Cement and Primers for Solvent-weld Joints: Make and type approved by manufacturer(s) of pipe and fittings. Maintain cement proper consistency throughout use.
- B. Pipe and Joint Compound: Permatex: Do not use on sprinkler inlet port.

2.22 MISCELLANEOUS EQUIPMENT/ACCESSORIES

- A. Concrete For Thrust Blocks and Pads: Poured-in-place Class A concrete per Section 90 of the Caltrans Standard Specifications.
- B. Sleeves and Conduits: See Drawings.
- C. Key(s) for Quick-Coupling Valves:
 - 1. Type: Same manufacturer as Quick-Coupling Valve.

2.22 OTHER EQUIPMENT: As shown on Drawings and required for a fully functional irrigation system.

PART 3 - EXECUTION

3.1 EXAMINATION

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- A. Sleeves and Conduits: Verify that all installed sleeving and conduits are undisturbed and are free of defects or errors introduced by the work of other sections.
- B. Water Meter/Water Pressure: Test and verify that existing water pressure is the minimum pressure at maximum system g.p.m. to operate the irrigation system as indicated on the drawings.
- C. Stub-outs: Verify that all stub-outs to be provided under another contract are correctly sized, located and installed as noted on Drawings.
- D. Notification: Submit written notification to Owner's Representative within ten (10) working days of above inspections describing all acceptable and non-acceptable site conditions.

3.2 CONNECTIONS TO SERVICES

- A. Provide and coordinate connection to water meter.
- B. Provide and coordinate connection of irrigation controller to electrical power source.

3.3 INSTALLATION

- A. Install irrigation system components in accordance with this Section, with the Drawings, with the manufacturer's recommendations, and with established industry standards. The Contractor shall do nothing that may jeopardize any manufacturer warranty.

- B. Conduits and Sleeves:

Coordination: Provide conduits and sleeves and coordinate installation with other trades.

Extent: Install conduits and sleeves where control wires and pipes pass under paving or through walls as shown on Drawings. Extend twelve inches (12") beyond edges of paving and walls and cap ends until ready for use.

- C. Excavating and Trenching:

- 2. Dig trenches wide enough to allow a minimum of three inches (3") between parallel pipe lines. Provide a minimum cover from finish grade as follows:

- D. Pipeline Assembly:

- 1. Install pipe and fittings in accordance with manufacturer's current printed Specifications.

- 2. Clean all pipes and fittings of dirt, scale and moisture before assembly.

- 3. Solvent-welded Joints for PVC Pipes:

- a. Solvents: Use solvents and methods specified by pipe manufacturer.

- b. Curing Period: Minimum of one (1) hour before applying any external stress on the piping and at least 24 hours before placing the joint under water pressure.

- 4. Threaded Joints for Plastic Pipes:

- a. Use Permatex on all threaded PVC fittings except sprinkler heads and quick coupler valve ACME threads.

- b. Joining: Use strap-type friction wrench only. Do not use metal-jawed wrench. Assemble finger tight plus one or two turns.

- 5. Laying of Pipe:

- a. Bedding On-grade: Remove from trench all rocks or clods. Bed pipe in at least 2 inches of soil excavated from trench. Backfill on all sides of piping to provide a uniform bearing.

- b. Snaking: Snake pipe from side to side of trench bottom to allow for expansion and contraction. Minimum allowance for snaking is one (1) additional foot per 100 ft. of pipe.

- c. Moisture Restrictions: Do not lay PVC pipe when there is water in the trench. Do not assemble PVC pipe unless the pipe is dry.
- E. Control Valves:
 - 1. Install in valve boxes where shown on Drawings and group together where practical. Install box flush with finish grade, not necessarily level. If valve occurs in drainage swale, relocate out of drainage swale as approved by Owner's Representative.
 - 2. Where two or more valves are installed adjacent to each other, provide at least six inches (6") separation. Align boxes in a row, perpendicular with pavement edge.
 - 3. Permanently mark valve box lid with 2" black valve number and controller letter or with numbered metal tag inside box as approved by Owner's Representative.
 - 4. Refer to control wiring for required spare wire in each valve box.
- F. Install "Y"-Strainer upstream of remote control valves at backflow preventer.
- G. Sprinkler Head Installation:
 - 1. Bubblers:
 - a. Coordinate installation with planting contractor to insure timely and proper placement of heads at new planting.
- H. Subsurface Irrigation
 - 1. Install emitters at uniform 18 inches on center and 6 inches deep except where shown otherwise. Adjust spacing on slopes to prevent over watering at base of slopes. Install system in accordance with "Toro DL-2000 Low-Volume Irrigation Bidding Specifications and Design Details" and as shown on the Drawings as required for a complete working system.
 - 2. Provide air/vacuum relief valves at all high points on systems.
 - 3. Provide filter as shown and as recommended by emitters manufacturer.
 - 4. Tape pipe ends during installation and do not allow dirt or debris to enter pipe.
 - 5. Use emitter line with the specified emitter flow rate and emitter spacing. Assemble dripper line to allow water to flow continuously and directly, with no dead ends or dead end loops between control valve and flush valve.
 - 6. Use fittings at sharp bends and do not allow dripper line to kink.
 - 7. Install emitter line around perimeter of planter not more than 3 inches off edge for ground cover and turf, 18 inches maximum for shrub planting.
 - 8. Adjust alternate rows so emitters are spaced in a triangular pattern.
 - 9. Collect water from multiple dripper lines and convey the water to automatic line flush valve.
 - 10. Install flush valve at end(s) of collector laterals so that entire system will flush and be free of dirt and debris.
 - 11. Flush valves shall be open when water is turned on for the first time and after a break in the main or lateral lines. Extend collector lateral as required and locate flush valve at convenient accessible location.
 - 12. Flush the systems weekly through the first month of the maintenance period.
 - 13. Thoroughly saturate soil prior to planting. Provide additional surface watering as required to keep plant root systems moist during planting establishment period.
- I. Drip Irrigation:

1. Install system in accordance with "RainBird Landscape Irrigation Design and Specifications Xerigation Products and Details" or equal and as shown on the Drawings as required for a complete working system.
2. Install Toro DL 2000 Air/Vacuum Relief Valves at high points in system.
3. Install manual PVC ball valve with extra 3' of hose coiled in valve box at end(s) of collector laterals so that entire system will flush and be free of dirt and debris.
- J. Battery-Operated Controller:
 1. General: Install per drawings and manufacturer's instructions.
 2. Use a legible reduced copy of the Record Drawing for the irrigation diagram clearly showing all valves operated by the controller, station, number, valve size, and type of planting irrigated. Color code area operated by each valve.
- K. Control Wiring:
 1. General: Install control wires in common trenches with sprinkler mains and laterals wherever possible. Lay to the bottom side of pipe line. Provide looped slack at valves. Snake wires in trench to allow for contraction of wires. Tie wires in bundles at 10 ft. intervals.
 2. Extra Length: Provide 30 inches (30") extra control wire at each remote control valve splice to facilitate the removal of the remote control bonnet to finish grade without cutting wires.
 3. Spare: Install one unconnected spare control wire running from the controller through each intermediate control valve box.
 4. Size: Minimum size of wire is to be determined strictly by the manufacturer's current printed specifications for remote control valves, but not smaller than #14.
 5. Detection Wire: Install a bare #12 copper wire or greater on top of the PVC supply line for the purpose of possible future mine detection search. Install the control wires on the bottom of the PVC supply line with electrical tape every ten feet (10').
 6. Splicing: Crimp control wire splices at remote control valves. Seal with specified splicing materials. In-line splices will be allowed only on runs exceeding 2500 feet and only in junction boxes.
- L. Closing of Pipe and Flushing of Lines:
 1. Capping: Cap or plug all openings as soon as lines have been installed to prevent entrance of materials that would obstruct the pipe. Leave in place until removal is necessary for completion of installation.
- M. Rain Shutoff Switch:
 1. Install switch in area not affected by irrigation or rain shadow. Provide wires in rigid conduit as accepted by Owner's Representative.
- N. Detection Wire and Warning Tape:
 1. Install a bare # 12 copper wire or greater on top of the PVC supply line for the purpose of possible future mine detection search.
 2. Install a continuous PVC irrigation mainline warning tape 12" above the supply line.
- O. RCV IDENTIFICATION TAGS: Install in remote control valve box as recommended by manufacturer and as accepted by Owner's Representative.

1.4 MISCELLANEOUS EQUIPMENT

- A. Install miscellaneous equipment with concrete footings, brackets, etc., as required and as recommended by manufacturer.

3.5 FIELD QUALITY CONTROL

A. Testing of Irrigation System:

1. Make hydrostatic tests with risers capped when welded PVC joints have cured at least 24 hours. Center load piping with backfill to prevent pipe from moving under pressure. Keep all couplings and fittings exposed.
2. Install two (2) pressure gauges at opposite ends of main line system. Pump system up to a minimum of 125 psi the day preceding the scheduled test and verify that pressure is holding. Inspect system early following day and immediately notify Owner's Representative if the test confirmation must be postponed.
3. Apply continuous static water pressure of 125 psi in accordance with Caltrans Standard Specifications Section 20-5.03H, except after a drop in pressure (5 psi maximum), then the pressure must stabilize and remain stable for a one (1) hour minimum period before acceptance of the test.
4. Leaks detected during tests shall be repaired and test repeated until system passes tests at no additional cost to Owner.

B. Adjustment of the System:

1. Flush and adjust all sprinkler heads for optimum performance and to prevent overspray onto walks, roadways and buildings. Adjust the arc and radius as applicable.
2. Include as a part of the work any nozzle changes or arc adjustments necessary due to daytime windy conditions during grass establishment period. After grass has been established and watering can be performed during calm early morning or evening hours, make any required adjustments to nozzles and arcs.
3. Set all sprinkler heads perpendicular to finished grades unless otherwise noted on the drawings.
4. When the landscape sprinkler system is completed and before planting, perform a coverage test in the presence of the Owner's Representative to determine if the water coverage for planting areas is adequate.
5. Test controllers individually in the presence of the Owner's Representative and the Landscape Architect. Demonstrate that all control valves operate electronically. Provide vehicles and radio equipment as necessary to expedite this process.
6. Demonstrate to Owner's Representative that irrigation scheduling programmed into controller is adequate for plant requirements without causing runoff, and that scheduling capacities of controller are utilized.

3.6 BACKFILL AND COMPACTING

- A. General: After system is operating and required tests and reviews have been made, backfill excavations and trenches with clean soil, free of debris.
- B. Backfill for All Trenches: Regardless of the type of pipe covered, compact to minimum 95% density under pavements and 85% under planted areas.
- C. Finishing: Dress off areas to finish grades. Re-dress any areas which subsequently settle.
- D. Owner's testing agency will test backfill compaction in areas under paving.

3.7 MAINTENANCE

- A. The entire sprinkler irrigation system shall be under full automatic operation for a period of 2 days prior to any planting.
- B. The Owner's Representative reserves the right to waive or shorten the operation period.
- C. Maintain/repair system for full duration of plant maintenance period.

3.8 REVIEWS PRIOR TO ACCEPTANCE

- A. Notify the Owner's Representative in advance for the following reviews, according to the time indicated:
 - 1. Supply line pressure test and control wire installation - 72 hours.
 - 2. Coverage and controller test - 72 hours.
 - 3. Final review - 7 days.
- B. No reviews will commence without record drawings, without completing previously noted corrections, or without preparing the system for review.

3.9 FINAL REVIEW AND CLEANUP

- A. Operate each system in its entirety for the Owner's Representative at time of final review. Any items deemed not acceptable by the Owner's Representative shall be reworked to the complete satisfaction of the Owner's Representative.
- B. Provide evidence to the Owner's Representative that the Owner has received all accessories and equipment as required before final review can occur.
- C. Final acceptance and start of warranty period will occur no earlier than the end of the plant maintenance period.
- D. For time of final review, Contractor shall arrange a meeting with the Owner's maintenance personnel to demonstrate the operation of the irrigation systems automatically in order to verify acceptance and to familiarize the maintenance personnel with the system and recommended programming.

4.0 MEASUREMENT AND PAYMENT. The contract prices paid on a square foot basis for irrigation shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved installing, setting up and testing the irrigation system, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

1.03 CONTRACTOR'S COST BREAKDOWN (NOT USED)

PART 2 - PRODUCTS (NOT USED) PART 3 -

EXECUTION (NOT USED)

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SECTION 8. (BLANK)

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***** END OF SECTION *****

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SECTION 012500 CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.01 CHANGES IN CONTRACT PRICE

This section provides supplementary procedures for the administration of changes to the Contract as specified in Section 00700-Article 7, **CHANGES IN THE WORK**. Whenever corrections, alterations, or modifications of the Work under this Contract are ordered by the Construction Manager and approved by the City and increase the amount of work to be done, such added work shall be known as extra work; and when such corrections, alterations, or modifications decrease the amount of work to be done, such subtracted work shall be known as omitted work.

The difference in cost of the work affected by such change will be added to or deducted from the amount of said Contract price, as the case may be, by a fair and reasonable valuation, which shall be determined in one or more of the following ways as directed by the Construction Manager:

- A. Where applicable, by unit prices accepted by the City and stated in the Contract Documents;
- B. By unit prices subsequently fixed by agreement between the parties; C.
By an acceptable lump sum proposal from the Contractor; or
- D. By Force Account (as described in Section 01035-1.03, **FORCE ACCOUNT PAYMENT**), when directed in writing and administered by the City through its agents or representatives.

The prices agreed upon and any agreed upon adjustment in Contract Time shall be incorporated in the written order issued by the City, which shall be written so as to indicate an acceptance on the part of the Contractor as evidenced by its signature. By signature of the Change Order, the Contractor acknowledges that the adjustments to cost and time contained in the Change Order are in full satisfaction and accord, payment in full, and so waives any right to claim any further cost and time impacts at any time during and after completion of the Contract for the changes encompassed by the Change Order.

1.02 NEGOTIATED CHANGE ORDERS

Under the methods described in Sections 01035-1.01B and 01035-1.01C, the Contractor shall submit substantiating documentation with an itemized breakdown of Contractor and subcontractor direct costs, including labor, material, equipment rentals, and approved services, pertaining to such ordered work in the form and detail acceptable to the Construction Manager. The direct costs shall include only costs as described in Section

01035-1.04, **DIRECT COST CATEGORIES**.

The Construction Manager will review the Contractor's proposal for the change and negotiate an equitable adjustment with the Contractor. After there is an agreement the Construction Manager will prepare and process the Change Order and make a recommendation for action by the City. All Change Orders must be approved by the City in writing before the work can be authorized and the Change Order executed.

1.03 FORCE ACCOUNT PAYMENT

If either the amount of work or payment for a Change Order cannot be determined or agreed upon beforehand, the City may direct by written Change Order or Field Order that the work be done on a force account basis. The term "force account" shall be understood to mean that payment for the work will be

done on a time and expense basis, that is, on an accounting of the Contractor's forces, materials, equipment, and other items of cost as required and used to do the work. For the work performed, payment will be made for the documented actual cost of the work as described in Section 01035-1.04, **DIRECT COST CATEGORIES**.

Prior to the commencement of force account work, the Contractor shall notify the Construction Manager of its intent to begin work. Labor, equipment and materials furnished on force account work shall be recorded daily by the Contractor upon report sheets acceptable to the Construction Manager. The reports, if found to be correct, shall be signed by both the Contractor and Construction Manager, or inspector, and a copy of which shall be furnished to the Construction Manager no later than the working day following the performance of said work. The daily report sheet shall thereafter be considered the true record of force account work provided. If the Construction Manager, or inspector, do not agree with the labor, equipment and/or materials listed on the Contractor's daily force account report, the Contractor and Construction Manager, or inspector, shall sign-off on the items on which they are in agreement. The Construction Manager shall then review the items of disagreement and will advise the Contractor, in writing, of its determination. If the Contractor disagrees with this determination, it shall have the right to file a claim notice as provided in Section 00700-7.03A, **Notice**.

The Contractor shall maintain its records in such a manner as to provide a clear distinction between the direct costs of work paid for on a force account basis and the costs of other operations.

To receive partial payments and final payment for force account work, the Contractor shall submit, in a manner approved by the Construction Manager, detailed and complete documented verification of the Contractor's and any of its subcontractor's actual costs involved in the force account pursuant to the pertinent Change Order or Field Order. Such costs shall be submitted within thirty (30) days after said work has been performed. No payments will be made for work billed and submitted to the Construction Manager after the thirty (30) day period has expired. The force account invoice shall itemize the materials used and shall cover the direct costs of labor and the charges for equipment rental, whether furnished by the Contractor, subcontractor, or other forces. The invoice shall be in a form acceptable to the Construction Manager and shall provide names or identifications and classifications of workers, the hourly rate of pay and hours worked, and also the size, type, and identification number of equipment and hours operated. Material charges shall be substantiated by valid copies of vendor's invoices.

1.04 DIRECT COST CATEGORIES

The categories described below are defined to be direct costs. No other type of costs will be allowable as direct costs. Direct costs shall not include any labor costs pertaining to the Contractor's and subcontractors' managers or superintendents, their office and engineering staffs, the cost of their offices, facilities, vehicles, or anyone not directly employed on such work, nor small tools and supplies. All such items are considered indirect costs which form a part of the Contractor's and subcontractors' overhead expenses.

The City reserves the right to furnish such labor, materials and equipment as it deems expedient, and the Contractor shall have no claim for profit or added fees on the cost of such items.

A. Direct Labor

The Contractor will be paid the cost of direct craft labor for the workers and foremen (when authorized by the Construction Manager) used or proposed to be utilized in the actual and direct performance of the work.

The direct labor cost will be the actual payroll cost, including wages, subsistence and travel payments, fringe benefits as established by negotiated labor agreements or state prevailing wages. To these actual wages, will be added a labor surcharge set forth in the State of California

Department of Transportation publication entitled Labor Surcharge & Equipment Rental Rates. An additional allowance will be added to this labor rate surcharge pursuant to current rate (was 8% in 2010). No other fixed labor burdens will be considered, unless approved in writing by the Construction Manager.

Except as otherwise provided, the Contractor shall receive no additional compensation for wage premiums resulting from overtime work performed under change conditions without the prior written authorization of the Construction Manager.

B. Materials

The Contractor will be paid the cost of the materials to the purchaser, including tax and delivery if paid. If the Contractor does not furnish satisfactory evidence of the cost of such materials, it shall be deemed to be the lowest current price for the materials delivered to the job site for the applicable quantities of the materials. Small tools and supplies will be paid for based on seven and a half (7.5) percent of the direct labor costs for the change prior to inclusion of the markup allowances provided for in Section 01035-1.05, **MARK-UP ALLOWANCES**. The allowance for small tools and supplies shall be deemed as full compensation for all tools and materials which are incidental to performing work including safety equipment provided by the Contractor to its employees.

C. Construction Equipment

The cost of construction machinery and equipment for changes shall be based on fair rental cost or equivalent rental cost of owned equipment. Such costs will be allowed for only those days or hours during which the equipment is in actual use. Payment shall be based on actual rental and transportation invoices but shall not exceed the rental rates listed for such equipment in the State of California Department of Transportation publication entitled "Labor Surcharge and Equipment Rental Rates" which is in effect on the date upon which the work is performed. Owner-operated equipment rates shall not exceed the rates in the aforesaid Rental Rate publication plus the labor costs as provided in Section 01035-1.04A, **Direct Labor**. The rental cost allowed for equipment will, in all cases, be understood to cover all fuel, supplies, repairs, ownership, and incidental costs and no further allowances will be made for those items, unless specific written agreement to that effect is made. Compensation for idle time of equipment through delays caused by the City will be made consistent with Section 8-1.09, Right of Way Delays, of the Caltrans Standard Specifications.

Individual items of construction equipment or small tools which have a replacement value of five hundred dollars (\$500) or less shall not be charged to the Change Order work unless it can be demonstrated that the particular item is needed solely for the completion of the Change Order work.

1.05 MARK-UP ALLOWANCES

The Contractor and subcontractors shall be entitled to compensation for indirect and overhead costs, bond and insurance costs, and profit for Change Order work. This compensation shall be in the form of mark-up percentages applied to the direct cost of the Change Order work, as further described below. The maximum markup which will be allowed for the Contractor's combined overhead and profit will be:

A. For work by its own organization, the Contractor may add up to the following percentages:

- | | | |
|----|--------------|---------------------------------------|
| 1. | Direct Labor | |
| | a. | Negotiated Change Orders : 25 percent |
| | b. | Force Account Payment: 15 percent |

2.	Materials	10 percent
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3. Equipment (owned or rented) 15 percent
- B. For all such work performed by subcontractors, such subcontractor may add the same percentages as the Contractor as listed in Section 01035-1.05A above to its actual net increase in costs for combined overhead and profit. The Contractor may add up to five (5) percent of the subcontractor's total for its combined overhead and profit. No further compensation will be allowed for the Contractor's administration of the work performed by the subcontractor.
- C. For all such work done by sub-tier subcontractors, such sub-subcontractors may add the same percentages as the Contractor as listed in Section 01035-1.05A above to its actual net increase in costs for combined overhead and profit. The subcontractor may add up to five (5) percent of the sub-subcontractor's total for its combined overhead and profit. The Contractor may add up to five (5) percent of the subcontractor's total for its combined overhead and profit. No further compensation will be allowed for the Contractor's administration of the work performed by the subcontractor.
- D. For all such work performed by consultants, engineers, surveyors, etc. the combined total allowable markup for the Contractor and all subcontractors shall be five (5) percent of the fee total.
- E. To the total of the direct costs and markups allowed herein under, not more than two (2) percent shall be added for any and all additional contractor bond and insurance, other than labor insurance. The compensable percentage for additional bonds and insurance shall be based on actual costs for the contractors bonds and insurance, as substantiated through documentation submitted to the Construction Manager.

When both additional and deleted work are involved in any one change, the markup allowances of this Section shall be applied to the net extra cost of the work, if any, after subtraction of the costs for the omitted work from the extra work. For Change Order work which results in a net decrease in cost a minimum of five (5) percent markup shall be added to the sum of the direct labor, materials and equipment as a deduction for profit, indirect and overhead costs, and reduction in bond and insurance. The Contractor shall not be entitled to nor claim for anticipated profits on work that may be omitted.

The added fixed fees shall be considered to be full compensation, covering the cost of general supervision, overhead, profit, small tools, incidentals and any other general expenses. The above fixed fees represent the maximum limits which will be allowed, and they include the Contractor's and all subcontractors' indirect field and home office expenses and all other costs for cost proposal preparation, schedule analysis and preparation, operation and maintenance manual documentation, and record documents and change order administration.

1.06 INCREASED OR DECREASED QUANTITIES

Increases or decreases in the quantity of a Contract unit price bid item of work will be determined by comparing the total pay quantity of such item of work with the Bid Schedule quantity. If the total pay quantity of any item of work required under the Contract varies from the Bid Schedule quantity by ten (10) percent or less, payment will be made for the quantity of work of said item performed at the Contract unit prices therefore, unless eligible for adjustment pursuant to Section 01035-1.06D, **Changes in Character of Work**.

If the total pay quantity of any item of work required under the Contract varies from the Bid Schedule quantity by more than ten (10) percent in the absence of an executed Contract change order specifying the compensation to be paid, the compensation payable to the Contractor will be determined in accordance with Sections 01035-1.06A, 1.06B or 1.06C, as the case may be.

A. Increases of More Than Ten (10) Percent

Should the total pay quantity of any item of work required under the Contract exceed the Bid

Schedule quantity by more than ten (10) percent the work in excess of one hundred ten (110) percent of the Bid Schedule quantity will be paid for by adjusting the Contract unit price, as hereinafter provided. At the option of the Construction Manager, payment for the work involved in such excess will be made on the basis of force account as provided by Section 01035-1.03, **FORCE ACCOUNT PAYMENT**.

Such adjustment of the Contract unit price will be the difference between the Contract unit prices and the actual unit costs, which will be determined as hereinafter provided, of the total pay quantity of the item. If the costs applicable to such item of work include fixed costs, such fixed costs will be deemed to have been recovered by the Contractor by the payments made for one hundred ten (110) percent of the Bid Schedule quantity for such item, and in computing the actual unit cost, such fixed costs will be excluded. Subject to the above provisions, such actual unit cost will be determined by the Construction Manager in the same manner as if the work were to be paid for on a force account basis as provided in Section 01035-1.03, **FORCE ACCOUNT PAYMENT** or such adjustment will be as agreed to by the Contractor and the Construction Manager.

When the compensation payable for the number of units of an item of work performed in excess of one hundred ten (110) percent of the Bid Schedule quantity is less than \$5,000 at the applicable Contract unit price, the Construction Manager reserves the right to make no adjustment in said price if it so elects, except that an adjustment will be further considered if requested in writing by the Contractor.

B. Decreases of More Than Ten (10) Percent

Should the total pay quantity of any item of work required under the Contract be less than ninety-(90) percent of the Bid Schedule quantity, an adjustment in compensation pursuant to this Section will not be made unless the Contractor so requests in writing. If the Contractor so requests, the revised quantity will be paid for by adjusting the Contract unit price as hereinafter provided. At the option of the Construction Manager, payment for the quantity of the work of such item performed will be made on the basis of force account as provided in Section 01035-1.03, **FORCE ACCOUNT PAYMENT**. However, in no case shall the payment for such work be less than that which would be made at the Contract unit price.

Such adjustment of the Contract unit price will be the difference between the Contract unit price and the actual unit cost of the total pay quantity of the item, including fixed costs. Such actual unit cost will be determined by the Construction Manager in the same manner as if the work were to be paid for on a force account basis as provided in Section 01035-1.03, **FORCE ACCOUNT PAYMENT**; or such adjustment will be as agreed to by the Contractor and the Construction Manager.

The payment for the total pay quantity of such item of work will in no case exceed the payment which would have been made for the performance of ninety percent (90%) of the Bid Schedule of the quantity for such item at the original Contract unit price.

C. Eliminated Items

In the event that a part of the Work is to be eliminated in its entirety and such Work is covered by unit price(s) contained in the Bid and/or Contract Documents, the price of the eliminated Work item shall be based on the applicable unit price(s). The Contractor shall be paid five (5) percent of the total extended amount (bid price times quantity) for the eliminated Work item in consideration of the applicable Contractor's overhead costs.

Should any Contract item of the Work be eliminated in its entirety, in the absence of an executed Contract Change Order covering such elimination, payment will be made to the Contractor for

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actual costs incurred in connection with such eliminated Contract item if incurred prior to the date of notification in writing by the Construction Manager of such elimination.

If acceptable material is ordered by the Contractor for the eliminated item prior to the date of notification of such elimination by the Construction Manager, and if orders for such material cannot be canceled, it will be paid for at the actual cost, including a five (5) percent mark-up, to the Contractor. In such case, the material paid for shall become the property of the City and the actual cost of any further handling will be paid for. If the material is returnable to the vendor and if the Construction Manager so directs, the material shall be returned and the Contractor will be paid for the actual costs of charges made by the vendor for returning the material. The actual cost of handling returned material will be paid for by the City.

D. Changes in Character of Work

If an ordered change in the Plans and Specifications materially changes the character of work of a Contract unit price bid item from that on which the Contractor based its Bid price, and if the change increases or decreases the actual unit cost of such changed item as compared to the actual or estimated actual unit cost of performing the work of said item in accordance with the Plans and Specifications originally applicable thereto, in the absence of an executed Contract Change Order specifying the compensation payable, an adjustment in compensation therefore will be made in accordance with the following:

The basis of such adjustment in compensation will be the difference between the actual unit cost to perform the work of said item or portion thereof involved in the change as originally planned and the actual unit cost of performing the work of said item or portion thereof involved in the change, as changed. Actual unit costs will be determined by the Construction Manager in the same manner as if the work were to be paid for on a force account basis as provided in Section 01035-1.03, **FORCE ACCOUNT PAYMENT**; or such adjustment will be agreed to by the Contractor and the Construction Manager. Any such adjustment will apply only to the portion of the work of said item actually changed in character. At the option of the Construction Manager, the work of said item or portion of item which is changed in character will be paid for by force account as provided in Section 01035-1.03, **FORCE ACCOUNT PAYMENT**.

If the compensation for an item of work is adjusted under this Section, the costs recognized in determining such adjustment shall be excluded from consideration in making an adjustment for such item of work under the provisions in Sections 01035-1.06A, **Increases of More Than Ten (10) Percent** and 1.06B, **Decreases of More Than Ten (10) Percent**.

1.07 COST PRICING DATA AND ACCESS TO RECORDS

All cost and pricing data submitted by the Contractor with respect to any change, prospective or executed, or any claim for extra compensation shall be a true, complete, accurate and current representation of actual cost and pricing of the work. The Construction Manager may require a formal certification as to cost and pricing data submitted by the Contractor.

The Construction Manager shall have access, upon reasonable notice during normal business hours, to any books, documents, accounting records, papers, project correspondence, project files, scheduling information and other relevant records of the Contractor and all subcontractors directly or indirectly pertinent to the work, original as well as changes and claimed extra work, and the Contract for the purpose of making audit, examination, excerpts and transcriptions and in order to verify or evaluate any change, prospective or executed, or any claim for which compensation has been requested or notice of potential claim has been tendered.

Such books, documents, and other records mentioned above shall include, but are not limited to all those

reasonably necessary to determine the accurate amount of direct and indirect costs, job site, and delay and impact costs, however characterized, and shall include the original Bid and all documents related to the Bid and its preparation, as well as, the as-planned construction schedule and all related documents. Such access shall include the right to examine and audit such records and make excerpts, transcriptions, and photocopies at the City's cost.

1.08 TIME EXTENSIONS FOR CHANGE ORDERS

If the Contractor requests a time extension for the extra work necessitated by a proposed Change Order, the request must include written justification for the additional time. Contractor is not automatically granted time extension with City's approval of the Change Order.

PART 2 - PRODUCTS (NOT USED) PART 3 -

EXECUTION (NOT USED)

*****END OF SECTION*****

SECTION 13150 PROJECT MEETINGS

PART 1 - GENERAL

1.01 PRE-CONSTRUCTION CONFERENCE

Prior to the start of construction, the City will conduct a pre-construction conference that shall be attended by the Contractor's Project Manager/Project Engineers and major subcontractors and major equipment and material suppliers, affected utilities and others as determined by the Contractor and Construction Manager. At the conference, the City will review the Contractor's proposed schedule of operations and the construction procedure and sequence requirements. Also discussed will be the Contractor's field organization, submittals, progress payments, change order procedures, safety requirements, permits and inspections, and other matters.

1.02 PROGRESS MEETINGS

The Construction Manager shall schedule, arrange and conduct progress meetings. These meetings shall be conducted not more than once per week and shall be attended by the Contractor's superintendent and representatives of all subcontractors, utilities, and others, who are active in the execution of the Work. The purpose of these meetings shall be to review the Contractor's schedule, resolve conflicts, and in general, coordinate and expedite the execution of the Work.

The agenda of progress meetings shall include, as a minimum, review of progress and schedule, clarifications, changes, quality of work, progress payment request, and record documents. The Construction Manager shall prepare and distribute minutes to the meetings.

1.03 PARTNERING MEETINGS (NOT USED)

1.04 OTHER PROJECT MEETINGS

The Contractor shall attend and require the participation of other subcontractors or suppliers for other project related meetings when requested by the Construction Manager or the City.

PART 2 - PRODUCTS (NOT USED) PART 3 -

EXECUTION (NOT USED)

***** END OF SECTION *****

SECTION 13200 PROGRESS SCHEDULES AND REPORTS

PART 1 - GENERAL

1.01 GENERAL

The Contractor shall provide a construction schedule that includes a procedural outline of any system shutdowns and proposed tie-in procedures, which shall be subject to the favorable review of the Construction Manager and the City.

1.02 NOT USED

1.03 CONSTRUCTION SCHEDULE A.

General

The Construction Schedule for this Project will also be referred to as the Base Schedule.

The Contractor shall designate, in writing, an authorized representative in its firm who will be responsible for the preparation, revising, and updating of the Base Schedule. The Contractor's representative shall have direct project control and complete authority to act on behalf of the Contractor in fulfilling the construction scheduling requirements set forth herein, and such authority will not be interrupted throughout the duration of the Project. The requirements for the Base Schedule are included to assure adequate planning and execution of the Work and to assist the Construction Manager in appraising the reasonableness of the proposed schedule and evaluating progress of the Work.

B. Preliminary and Base Progress Schedule

1. Within fourteen (14) days after award of Contract, the Contractor shall submit a Preliminary Progress Schedule covering the following project phases and activities:
 - a. Procurement and Submittals, including shop drawings and fabrication and delivery of key and long lead time procurement activities.
 - b. All activities planned in the execution of the Work.
 - c. The total duration of the summary activities shall equal the Contract Time.
 - d. Approximate duration for each summary activity representing the Contractor's best estimate for the Work the summary activity represents.
2. The Preliminary Progress Schedule shall describe the activities to be accomplished and their dependency subject to all requirements under these Construction Schedule provisions, as appropriate. The Preliminary Progress Schedule will be used temporarily to record and monitor the progress of the Work until a Base Schedule has been completely developed and Favorably Reviewed. Recorded data on the Preliminary Progress Schedule shall be incorporated into the Base Schedule during the first schedule update.
3. The Construction Manager shall review the schedule and provide any comments, its Favorable Review of the schedule, or request a meeting to review the schedule with the Contractor within ten (10) days of receipt of the schedule. If requested, the Contractor shall participate in a review and evaluation of the schedule with the Construction Manager. Any revisions necessary as a result of this review shall be resubmitted for review by the Construction Manager within five (5) days.

4. The Base Schedule shall be used in implementation of the Work and progress of the Work will be compared to the Base Schedule at each weekly progress meeting.

1.04 WEATHER CONDITIONS

Seasonal weather conditions shall be considered in the planning and scheduling of work influenced by high or low ambient temperatures or precipitation to ensure the completion of the Work within the Contract Time. No time extensions will be granted for the Contractor's failure to take into account such weather conditions for the location of the Work and for the period of time in which the Work is to be accomplished.

The City's representative has the sole authority to determine to grant non-working days due to inclement weather.

1.05 UPDATES

A. Submittal Period

The Contractor shall submit at weekly intervals a report of the actual construction progress. Each weekly report shall cover the previous week's progress. If, in the opinion of the Construction Manager, the Project is behind schedule, the report shall include revised tabular reports showing the Contractor's proposed revised schedule to complete the Project by the designated Contract Time.

1.06 TIME IMPACT ANALYSES

- A. When Change Orders are initiated or delays are experienced, the Contractor may submit to the Construction Manager a written Time Impact Analysis illustrating the influence of each change, delay, or Contractor request on the current Progress Schedule completion date.

1. Construction Schedule – Analysis

- a. The analysis shall demonstrate the time impact based on the beginning and ending date of the occurrence, change, delay or revision; the status of construction at that point in time immediately preceding the occurrence, change, delay or revision; and the event time computation of all affected activities.
- b. The event times used in the analysis shall be those included in the latest updated copy of the Construction Schedule or as adjusted by mutual agreement between the Construction Manager and Contractor.

- B. Activity time delays will not automatically mean that an extension of Contract Time is warranted or due the Contractor.

1. It is possible that an excusable delay or Contract modification will not affect existing critical activities or cause noncritical activities to become critical, i.e., a delay or modification may result in only absorbing a part of the available total float that may exist within an activity chain of the network, thereby not causing any effect on the Contract completion date or Contract Time.
2. The Contractor acknowledges and agrees that mitigation for delays due to changes, differing site conditions, and other causes will require revision of preferential sequences of the Work. Accordingly, to mitigate delays, the activities shall be resequenced prior to the Contractor proposing an updated schedule which supports a delay to the Project

as a whole. When a delay to the Project as a whole can be avoided by revising preferential sequencing, and the Contractor chooses not to implement the revisions, the Contractor will be entitled to a time extension but is not entitled to compensation for indirect overhead for this extended duration.

3. Actual delays in activities which do not affect the critical path work or which do not move the Contractors planned completion date beyond a milestone or the Contract completion date will not be the basis for an adjustment to the Contract Time.
 4. Extensions of time can be granted for a delayed or impacted activity only for the duration of the time adjustment which exceeds the total float for the schedule path wherein the activity is located. The adjustment is only applicable during the time the delay occurred or when the change is ordered.
- C. Time Impact Analyses shall be submitted within fifteen (15) days after a delay occurs or with the Contractor's cost proposal in response to a notice of change from the Construction Manager. In cases where the Contractor does not submit a Time Impact Analysis for a specific Change Order, delay, or other Contractor requested time extension within the specified period of time, then it is mutually agreed that the particular Change Order, delay, or Contractor request has no time impact on the Contract completion date and no time extension is required.
1. Approval or rejection of Time Impact Analyses by the Construction Manager and the City will be made within fifteen (15) days after receipt of the Time Impact Analysis unless subsequent meetings and negotiations are necessary.
 2. Upon approval, a copy of the Time Impact Analysis signed by the Construction Manager and the City will be returned to the Contractor.
 3. Upon mutual agreement by both parties, schedule revisions illustrating the influence of Change Orders, delays, and/or Contractor requests will be incorporated into the next schedule update.

1.07 WEEKLY ACTIVITIES PLAN

On the last working day of every week the Contractor shall submit to the Construction Manager the Contractor's Plan of Activities for the following three weeks. The Plan of Activities shall describe the activity and location of the activity and include the activity number as provided in the Construction Schedule.

PART 2 - PRODUCTS (NOT USED) PART 3 -

EXECUTION (NOT USED)

END OF SECTION

SECTION 13500 SPECIAL PROCEDURES – Not Used

END OF SECTION

SECTION 14100 REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 APPLICABLE CODES

Contractor shall comply with all codes applicable to the Project; as identified in the following list. The omission of a code on the list shall not excuse nor relieve the Contractors obligation to comply with any such code applicable to the Work.

Sausalito Municipal Code
California Plumbing Code
California Building Code

1.02 FEES AND PERMITS

The Contractor is granted City Permits upon execution of Agreement including but not limited to Grading, Encroachment, Building and Plumbing. The Contractor shall obtain necessary encroachment permits from the Marin Municipal Water District, PG&E, or other agency having jurisdiction over the construction area, and shall be responsible for satisfying all requirements, calling for inspections, and obtaining final approvals. The Contractor shall notify the Construction Manager of the need and the readiness of all required inspections. All inspections are to be coordinated with the Construction Manager. The Contractor shall comply with all construction conditions stipulated in the permits. The Contractor shall initially pay for all permits, fees and inspections required for local agency and code requirements. The Contractor shall submit invoice to the Construction Manager for the City's reimbursement of such costs.

The Contractor shall be responsible for and the City shall not provide reimbursement for any costs required for the reinspection of defective work or additional costs due to the Contractor's failure to properly schedule the inspections.

1.03 STORM WATER QUALITY CONTROLS

- A. The Federal Clean Water Act [Section 402 (p)] requires that discharges of storm water associated with industrial and construction activity will be regulated by National Pollutant Discharge Elimination System (NPDES) Permits. Federal regulations promulgated by the U.S. Environmental Protection Agency identify the categories of industries which are required to submit an application for the NPDES permit for storm water discharge no later than October 1, 1992, unless already permitted either by an individual storm water permit or a general storm water permit.
- B. On October 1, 1992, the State Water Resources Control Board (State Water Board) adopted a general construction storm water permit for all categories of construction storm water discharges. This permit is a statewide general construction storm water permit for construction activity that results in a land disturbance of one (1) acre or more.
- C. Since the City is responsible to the State for the preparation of and compliance with the various management plans called for in the permit, the City requires the Contractor to provide the detail

planning and compliance activities required insofar as they would potentially affect Contractor's methods and means of performing the Work. The conditions of the permit applicable to the Contractor are as follows:

1. Discharge prohibitions
2. Receiving water limitations
3. Special Provisions for Construction Activity a.
Standard Provisions 2, 3, 5, and 6
4. Section A: Storm Water Pollution Prevention Plan
 - a. The Contractor shall prepare a Stormwater Pollution Prevention Plan (SWPPP) that the Contractor shall adopt and be fully responsible for following. Before starting any work on the project, the Contractor shall submit a copy of the SWPPP to the Construction Manager. The Contractor shall not perform any clearing and grubbing or earthwork on the project until the SWPPP is submitted and accepted by the Construction Manager.
5. Section B: Monitoring and Reporting Requirements
 - a. The Contractor shall comply with all applicable paragraphs of this section of the SWPPP. The Contractor shall conduct inspections of the construction site prior to anticipated storm events and after storm events to assess effectiveness of the SWPPP.
 - b. A record of the inspections must include the date of the inspection, the individual(s) who performed the inspection and the observations.
 - c. The inspection reports shall be submitted within twenty-four (24) hours of the event.

1.04 EXISTING UTILITIES AND IMPROVEMENTS A. General

1. Access shall be provided at all times to all fire hydrants.
2. Contractor shall contact Underground Services Alert (USA) at (800) 227-2600 or (800) 642-2444 one week in advance of starting excavation to provide for marking of utilities. Shutdown of utilities shall be performed only by the utility owner.
3. The Contractor shall protect all existing utilities, pavement, sidewalks, curbs, fences, landscaping, and other improvements that are not designated for removal, from damage by his operations. Any such features that are damaged or temporarily relocated by the Contractor during construction shall be repaired or restored by the Contractor to a condition equal to or better than they were prior to such damage or temporary relocation all in accordance with requirements of the Contract Documents and at no expense to the City.
4. The location of known existing utilities and pipelines are shown on the drawings in their approximate locations. Some of the locations include multiple conduits. The Contractor shall exercise care in avoiding damage to those facilities which are to remain in service subsequent to the Work, and shall be held responsible for their repair if damaged. The Contractor shall also exercise care in maintaining those facilities which will be removed or abandoned by the Work until such time as they can be removed or abandoned.
5. It shall be the Contractor's responsibility to ascertain the actual location of all existing utilities and other improvements that will be encountered in his construction operations, and to see that such utilities or other improvements are adequately protected from damage due to such operations. There is

no guaranty that all utilities or obstructions are shown or that the locations indicated are accurate. The Contractor shall take all possible precautions for the protection of unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be necessary. The cost of repair of any damages to existing utilities shown on the Plans, marked in the field, or attributable to negligence on the part of the Contractor shall be at the Contractor's expense.

6. Nothing herein shall be deemed to require the public agency to indicate the presence of existing overhead power, telephone and TV cable or underground service laterals and appurtenances when the presence of such utilities on the site of the construction can be inferred from the presence of visible facilities, such as poles, buildings, or meter and junction boxes, on or adjacent to the site of construction; provided, however, nothing herein shall relieve the public agency from identifying buried main or trunk lines in the Plans and Specifications.

B. Owner's Right of Access

1. The right is reserved to the City and to the owners of public utilities and franchises to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the Work of this Contract.

C. Exploratory Excavation

1. The Contractor shall verify the exact locations and depths of all utilities shown on the Plans or by Underground Services Alert (USA). Prior to trenching or excavating for any pipe or structure, the Contractor shall make exploratory excavations to completely expose all utilities shown on the drawings, or located by USA that may interfere with the Work. Excavations around underground electrical ducts and conduits shall be performed using extreme caution to prevent injury to workers or damage to the electrical ducts or conduits.
2. The Contractor shall contact the owner of each utility to determine if they permit potholing of their utility or if they pothole with their own personnel. All such exploratory excavations shall be performed as soon as practicable after award of the Contract and, in any event, a sufficient time in advance of construction to avoid possible delays to the Contractor's work.
3. The cost for performing said excavations shall be included in the Contractor's Bid Price. If the Contractor does not expose all required utilities, it shall not be entitled to additional compensation for work necessary to avoid interferences or for repair to damaged utilities.
4. When such exploratory excavations show the utility location as shown to be in conflict with the Work, the Contractor shall so notify the Construction Manager and a method for correcting the conflict will be supplied by the Construction Manager. The Contractor will be reimbursed for the cost of correcting the conflict in accordance with Section 00700- Article 7, **CHANGES IN THE WORK**.

D. Utilities to be Moved

1. Where the proper completion of the Work requires the temporary removal and/or relocation of an existing utility or other improvement the Contractor shall remove and, without unnecessary delay, temporarily replace or relocate such utility or improvement in a manner satisfactory to the Construction Manager and the owner of the facility. In all cases of such temporary removal or relocation, restoration to former location shall be accomplished by the Contractor in a manner that will restore or replace the

utility or improvement as nearly as possible to its former locations and to as good or better condition than found prior to removal.

2. In case it shall be necessary to permanently move any existing utility or improvement, the Contractor shall notify the Construction Manager a sufficient time in advance for the necessary measures to be taken to prevent interruption of service or delay of the Work.

E. Underground Utilities Shown or Indicated

1. Existing improvements that are shown on the Plans or the locations of which are indicated to the Contractor prior to excavation and that are to be retained, and all utility lines that are constructed during the Work shall be protected from damage during excavation and backfilling, and if damaged, shall be immediately repaired by the Contractor at no expense to the City. This provision shall also apply to existing utility services whose locations can be inferred from meters, vaults, valves, and other markings, or that are indicated by the owner of the utility.
2. All buried utilities shall be considered to be correctly shown or indicated if their true locations are within ten (10) horizontal feet of the locations shown either on the Plans or marked on the ground by the utility's owner regardless of depth.
3. The Contractor shall receive no additional compensation for extra work or delay for locating such correctly shown or indicated utilities.

F. Underground Utilities Not Shown or Indicated

1. If the Contractor encounters any existing utilities that are not shown or correctly shown on the Plans, and the locations of which are not correctly indicated to the Contractor prior to excavation, he shall immediately make a written report to the Construction Manager. If directed by the Construction Manager, repairs shall be made by the Contractor under the provisions for changes and extra work. This provision shall also apply to existing utility services whose locations cannot be inferred from meters, vaults, valves, or other markings, and are not indicated to the Contractor prior to excavation by the owner of the utility.
2. The Contractor shall be reimbursed for repair, removal, and/or relocation of these utilities, provided that he exercised reasonable care to avoid causing the damage. Reimbursement will be limited to extra materials, extra labor, and idled equipment that was actually working on the portion of the Work that was stopped due to the damage and could not reasonably be reassigned to another task of the Work.
3. The Contractor shall not be assessed liquidated damages for delay in completion of the Project when such delay was due to utilities that were not shown or located, or could not be inferred from visual evidence.

G. Approval of Repairs

1. The utility or improvement owner shall have the sole discretion to perform repairs or relocation work or permit the Contractor to do such repairs or relocation work at a reasonable price.
2. All repairs to a damaged improvement are subject to inspection and approval by an authorized representative of the improvement owner before being concealed by backfill or other work.

H. Maintaining in Service

1. All oil and gasoline pipelines; railroad facilities; power, telephone or communication

cable ducts; gas and water mains; irrigation, sewer, and storm drain lines; and overhead power and communication poles, wires and cables, encountered along the line of the Work shall remain continuously in service during all the operations under the Contract, unless other arrangements satisfactory to the Construction Manager are made with the owner of said facilities.

2. Planned facility shutdowns shall be accomplished as required by the owner of the facility. In some cases, this may require night or weekend work which shall be at no additional cost to the City. The Contractor shall program its work so that service will be restored in the minimum possible time and shall cooperate with the City in reducing shutdowns of utility systems to a minimum. No utility interruption will be permitted without the prior approval of the Construction Manager and the specific utility.
3. The Contractor shall be responsible for all damage due to its operations, and the provisions of this Section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.

I. Interruption of City Facilities – NOT USED

1.05 RIGHTS-OF-WAY

- A. The Contractor shall not do any work that would affect any existing oil, gas, sewer, or water pipeline; any existing telephone, telegraph, or electric transmission line; any fence; any railroad facility; or any other structure, nor shall the Contractor enter upon the rights-of-way involved until notified by the Construction Manager that the Owner has secured authority therefore from the proper party. After authority has been obtained, the Contractor shall give said party due notice of its intention to begin work, comply with any preconstruction easement conditions, and shall give said party convenient access for removing, shoring, supporting, or otherwise protecting such pipeline, transmission line, ditch, fence, or structure, and for replacing same.
- B. When two or more contracts are being executed at one time on the same or adjacent land in such manner that work on one contract may interfere with that on another, the Owner shall determine the sequence and order of the Work. When the territory of one contract is the necessary or convenient means of access for the execution of another contract, such privilege of access or any other reasonable privilege may be granted by the Owner to the Contractor so desiring, to the extent, amount, in the manner, and at the times permitted. No such decision as to the method or time of conducting the Work or the use of territory shall be made the basis of any claim for delay or damage, except as provided in the General Conditions for temporary suspension of the Work, Section 00700-6.06, **SUSPENSION OF WORK**.

1.06 CULTURAL RESOURCES

- A. The Contractor's attention is directed to the National Historic Preservation Act of 1966 (16 U.S.C. 470) and PRM 75-27 which provides for the preservation of potential historical architectural, archeological, or cultural resources (hereinafter called "cultural resources").
- B. The Contractor shall conform to the applicable requirements of the National Historic Preservation Act of 1966 as it relates to the preservation of cultural resources. Fair compensation to the Contractor for delays resulting from such cultural resources investigations shall be made.
- C. In the event potential cultural resources are discovered during subsurface excavations at the site of construction, the following procedures shall be instituted:
- D. The Construction Manager will issue a Stop Work Order directing the Contractor to cease all construction operations at the location of such potential cultural resources find.

- E. Such Stop Work Order shall be effective until such time as a qualified archaeologist can be called to assess the value of these potential cultural resources and make recommendations to the City. Any Stop Work Order shall contain the following:
 - 1. A clear description of the work to be suspended
 - 2. Any instruction regarding issuance of further orders by the Contractor for material services
 - 3. Guidance as to action to be taken on subcontracts
 - 4. Any suggestions to the Contractor as to minimization of his costs
 - 5. Estimated duration of the temporary suspension
- F. If the archaeologist determines that the potential find is a bona fide cultural resource, at the direction of the City, the Engineer shall extend the duration of the Stop Work Order in writing, and the Contractor shall suspend work at the location of the find.
- G. Equitable adjustment of the construction contract time shall be made in the following manner: If the work temporarily suspended is on the "critical path," the total number of days for which the suspension is in effect shall be added to the number of allowable contract days.

1.07 SPECIAL WORK HOURS FOR SPECIFIC ITEMS OF WORK

- A. The following items of work are required to be completed during the specified time period:
 - 1. General working hours shall be defined in Section 01560-1.07
 - 2. At least one lane of traffic in each direction shall be maintained between 7:00 a.m. and 5:30 p.m.
 - 3. All traffic lanes shall be opened between 5:30 p.m. and 7:00 a.m. except during the "night work" as specified below.

1.08 NIGHT WORK (NOT USED)

1.09 PROTECTION OF STREET OR ROADWAY MARKERS

- A. It is the responsibility of the Contractor to protect all survey monuments, survey markers, and street markers in the area of his work.
- B. Prior to breaking pavement or starting excavation, the Contractor shall reference all survey monuments and markers that will be affected by his work, and reset such monuments and markers after construction, in accordance with the requirements of Alameda County.
- C. Referencing and resetting of survey monuments and markers shall be done by a land surveyor registered in the State of California who is hired by the Contractor.

1.10 WORK WITHIN PRIVATE PROPERTY

- A. The Contractor shall restrict operations to cause the least amount of damage to the surrounding property and to save as many trees and plants as possible. If damage to the surrounding property has occurred, the Contractor shall restore the property to a condition equal to or better than that which existed prior to the Contractor's entry, or as required as part of these Contract Documents.

PART 2 - PRODUCTS (NOT USED) PART 3 - EXECUTION (NOT USED)

***** END OF SECTION *****

SECTION 014110 REGULATORY REQUIREMENTS – HAZARDOUS MATERIALS (NOT USED)

SECTION 014550 TESTING AND INSPECTION

PART 1 GENERAL

SECTION INCLUDES

Contractor's Quality Control

Quality of the Work

Inspections and Tests by Division of State Architect

Inspections and Tests by Serving Utilities

Inspections and Tests by Manufacturer's Representatives

Inspections by Independent Testing and Inspection Agency

Additional Testing and Inspection

Contractor's Quality Control

Contractor's Quality Control: Ensure that products, services, workmanship and Site conditions comply with requirements of Drawings and Specifications by coordinating, supervising, testing, and inspecting the Work and by utilizing only suitably qualified and appropriately audited, licensed or trained, personnel.

Quality Requirements: Work shall be accomplished in accordance with quality requirements of Drawings and Specifications, including, by reference, all codes, laws, rules, regulations, and standards. When no quality basis is prescribed, the quality and testing procedures shall be in accordance with the best-accepted practices of the construction industry for the locale of the Project, for projects of this type, or standards set by engineering or technical societies (e.g., ASTM or ASHRAE), whichever is more stringent.

Quality Control Personnel: Employ and assign knowledgeable and skilled personnel as necessary to perform quality control functions to ensure that the Work is provided as required.

Quality of the Work

Quality of Products: Unless otherwise indicated or specified, all products shall be new, free of defects, and fit for the intended use.

Quality of Installation: All Work shall be produced plumb, level, square and true, or true to indicated angle, and with proper alignment and relationship between the various elements, as shown on or required by Contract Documents.

Protection of Completed Work: Take all measures necessary to preserve completed Work free from damage, deterioration, soiling, and staining, until acceptance by City of Sausalito.

Standards and Code Compliance and Manufacturer's Instructions and Recommendations: Unless more stringent requirements are indicated or specified, comply with manufacturer's instructions and recommendations, reference

standards and building code research report requirements in preparing, fabricating, erecting, installing, applying, connecting, and finishing Work.

Deviations from Standards and Code Compliance and Manufacturer's Instructions and Recommendations: Secure City of Sausalito's advanced written consent. Document and explain all deviations from reference standards and building code research report requirements and manufacturer's product installation instructions and recommendations, including acknowledgement by the manufacturer that such deviations are acceptable and appropriate for the Project.

Verification of Quality: Work shall be subject to verification of quality by City of Sausalito in accordance with provisions of the Contract Documents.

Cooperate by making Work available for inspection by independent testing and inspection agencies.

Such verification may include mill, plant, shop, or field inspection as required.

Provide access to all parts of the Work, including plants where materials or equipment are manufactured or fabricated.

Provide all information and assistance as required, including that by and from subcontractors, fabricators, materials suppliers and manufacturers, for verification of quality by City of Sausalito.

Applicable provisions of the Contract Documents shall govern Contract Modifications, if any, resulting from such verification activities. Observations by City of Sausalito's Consultants: Periodic and occasional observations of Work in progress will be made by City of Sausalito and City of Sausalito's consultants as deemed necessary to review progress of Work and general conformance with design intent.

Limitations on Inspection, Testing and Observation: Neither employment of independent testing and inspection agency nor observations or tests by City of Sausalito and City of Sausalito's consultants shall in any manner relieve Contractor of obligation to perform Work in full conformance to all requirements of Contract Documents.

City of Sausalito's Acceptance and Rejection of Work: City of Sausalito reserves the right to reject all Work not in conformance to the requirements of the Drawings and Specifications, or otherwise defective.

Correction of Defective Work: Defective Work shall be modified, replaced, repaired or redone by the Contractor at no change in Contract Sum or Contract Time.

Acceptance of Defective Work: Acceptance of defective Work, without specific written acknowledgement and approval of City of Sausalito, shall not relieve the Contractor of the obligation to correct such Work.

Contract Adjustment for Defective Work: Should City of Sausalito determine that it is not feasible or in City of Sausalito's interest to require defective Work to be repaired or replaced, an equitable reduction in Contract Sum shall be made by agreement between City of Sausalito and Contractor. If equitable amount cannot be agreed upon, a Construction Change Directive will be issued and the amount in dispute resolved in accordance with applicable provisions of Section 00700 (General Conditions).

Non-Responsibility for Defective Work: City of Sausalito and City of Sausalito's consultants disclaim any and all

responsibility for Work produced not in conformance with the Drawings and Specifications.

Responsibility for Defective Work: Contractor shall have full responsibility for all consequences resulting from defective work, including without limitation all delays, disruptions, extra inspection and correction costs by Contractor and City of Sausalito and re-Work, and extra time and costs of all types. Contractor waives excuses for defective work relating to City of Sausalito's prior review of Submittals and/or prior failure to notice defective work in place on inspection.

Inspections and Tests by Governing Authorities

Regulatory Requirements for Testing and Inspection: Contractor shall also comply with Uniform Building Code (UBC) requirements and all other requirements of governing authorities having jurisdiction.

Inspections and Tests by Governing Authorities: Contractor shall cause all tests and inspections required by governing authorities having jurisdiction to be made for Work under this Contract.

Such authorities may include, but are not limited to, County of Marin, Public Works Department, Fire Department, and similar agencies.

Except as specifically noted, scheduling, conducting and paying for such inspections shall be solely the Contractor's responsibility.

Inspections and Tests by Serving Utilities

Cause all tests and inspections required by serving utilities to be made for Work under this Contract. Scheduling conducting and paying for such inspections shall be solely the Contractor's responsibility.

Inspections and Tests by Manufacturer's Representatives

Cause all tests and inspections specified to be conducted by materials or systems manufacturers to be made. Additionally, all tests and inspections required by materials or systems manufacturers as conditions of warranty or certification of Work shall be made, the cost of which shall be included in the Contract Sum.

Inspections by Independent Testing and Inspection Agency

City of Sausalito will select an independent testing and inspection agency or agencies approved by the Architect/Engineer to conduct tests and inspections in accordance with Part 1, Title 24, Section 4-335, California Code of Regulations and as indicated on Drawings, in Specifications and as required by governing authorities having jurisdiction.

Responsibility for time and costs shall be as indicated in schedule below. All time and costs for Contractor's service related to such tests and inspections shall be included in Contract Time and Contract Sum.

Notify City of Sausalito and Inspector in writing (and, if provided, on inspection request form provided by City of Sausalito) and, if directed by City of Sausalito, testing and inspection agency, when Work is ready for specified tests and inspections. Deliver this written notification at least 72 hours before the requested inspection date.

Pay for all additional charges by testing and inspection agencies and governing authorities having jurisdiction due to

the following:

Contractor's failure to properly schedule or notify testing and inspection agency or authorities having jurisdiction.

Changes in sources, lots, or suppliers of products after original tests or inspections.

Changes in means, methods, techniques, sequences, and procedures of construction that necessitate additional testing, inspection, and related services.

Changes in mix designs for concrete and mortar after review and acceptance of submitted mix design.

Contractor submitted requests to change materials or products, which are accepted, but require testing and/or reinspection beyond original design.

Tests and special inspections to be paid by City of Sausalito may, where required, include the following:

SECTION

MATERIAL TESTS

SECTION

SPECIAL INSPECTION

SECTION

ENVIRONMENTAL TESTS

Test and Inspection Reports: After each inspection and test, one copy of report shall be promptly submitted to City of Sausalito's Representative, or any other consultant City of Sausalito designates, Architect/Engineer, Contractor and any agency having jurisdiction (if required by Code).

Reports shall clearly identify the following:

Date issued.

Project name and number.

Identification of product and Specifications Section in which Work is specified.

Name of inspector.

Date and time of sampling or inspection.

Location in Project where sampling or inspection was conducted.

Type of inspection or test.

Date of test.

Results of tests.

Comments concerning conformance with Contract Documents and other requirements.

Test reports shall indicate specified or required values and shall include statement whether test results indicate satisfactory performance of products.

Samples taken but not tested shall be reported.

Test reports shall confirm that methods used for sampling and testing conform to specified test procedures.

When requested, testing and inspection agency shall provide interpretations of test results.

Contractor Responsibilities in Inspections and Tests:

Unless specified otherwise, notify Inspector, City of Sausalito's Representative, or any other consultant City of Sausalito designates, Architect/Engineer and independent testing and inspection agencies 48 hours in advance of expected time of each test and inspection, and for all other operations requiring inspection and testing services, by submitting Contractor's inspection request in writing (or, if City of Sausalito provides a specific form, on that form).

When tests or inspections cannot be performed after such notice, reimburse City of Sausalito for testing and inspection agency personnel and travel expenses incurred due to Contractor's negligence.

Deliver to laboratory or designated location, adequate samples of materials proposed to be used that require advance testing, together with proposed mix designs.

Cooperate with Inspector, City of Sausalito's Representative, or any other consultant City of Sausalito designates, and City of Sausalito's consultants. Provide access to Work areas and off-Site fabrication and assembly locations, including during weekends and after normal Work hours.

Provide incidental labor and facilities to provide safe access to Work to be tested and inspected, to obtain and handle samples at the Site or at source of products to be tested, and to store and cure test samples.

Provide, at least fifteen (15) Days in advance of first test or inspection of each type, a schedule of

tests or inspections indicating types of tests or inspections and their scheduled dates.

Additional Testing and Inspection

If initial tests or inspections made by the Inspector or City of Sausalito's Representative, or any other consultant City of Sausalito designates reveal that materials do not comply with Title 24, California Code of Regulations or with the Contract Documents, or if City of Sausalito has reasonable doubt that materials do not comply with Title 24, California Code of Regulations or with Contract Documents, additional tests and inspections shall be made as directed.

If additional tests and inspections establish that materials comply with Contract Documents, City of Sausalito shall pay all costs for such tests and inspections.

If additional tests and inspections establish that materials do not comply with Contract Documents, all costs of such tests and inspections shall be deducted from Contract Sum.

If Work requiring inspection is covered by follow-on or follow-up Work before it is inspected, uncover Work so proper inspections can be performed. All costs of such tests and inspections shall be deducted from Contract Sum.

PART 2 Products - Not Used

PART 3 Execution – Not used

END OF SECTION

SECTION 015000 TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 TEMPORARY FACILITIES

Construction hoists, elevators, scaffolds, stages, shoring, and similar temporary facilities shall be of ample size and capacity to adequately support and move the loads to which they will be subjected. Railings, enclosures, safety devices, and controls required by law or for adequate protection of life and property shall be provided.

1.02 STAGING AND SHORING

Temporary supports shall be designed by a registered professional engineer with an adequate safety factor to assure adequate seismic and load bearing capability. The Contractor shall submit design calculations for staging and shoring prior to commencement of Work and as required by Section 02080.

Excavation support shall be in accordance with Section 00700-4.07E, **Excavation Safety**.

1.03 PROTECTION OF WORK, PROPERTY AND PERSONS

The Contractor shall be responsible for the care of all work until its completion and Final Acceptance; and the Contractor shall, at its own expense, replace damaged or lost material and repair damaged parts of the Work, or the same may be done by the City, and the Contractor and its sureties shall be liable therefore. The Contractor shall make its own provisions for properly storing and protecting all material and equipment against theft, injury, or damage from any and all causes. Damaged material and equipment shall not be used in the Work. The Contractor shall take all risks from floods and casualties, or for delays from such causes. The Contractor may, however, be allowed a reasonable extension of time on account of such delays, subject to the conditions herein before specified. The Contractor shall remove from the vicinity of the completed work all plants, buildings, rubbish, unused material, concrete forms, sheeting or equipment belonging to the Contractor or used under its discretion during construction; and in the event of the Contractor's failure to do so, the same may be removed by the City at the expense of the Contractor, and the Contractor and its sureties shall be liable therefore.

The Contractor shall adopt all practical means to minimize interference to traffic and inconvenience, discomfort, or damage. The Contractor shall protect against damage, any piling, duct or structures crossing trenching or encountered in the Work and shall be responsible for any damage done to such structures, or damage therefrom. The Contractor shall support or replace, any such structures without delay and without any additional compensation, to the entire satisfaction of the Construction Manager. All obstructions to traffic shall be guarded by flagmen as required and by barriers and illuminated at night. The Contractor shall be responsible for all damage to persons and property directly or indirectly caused by its operations, and under all circumstances the Contractor shall comply with the regulations of the City or County, and the laws and regulations of the State of California, relative to safety of persons and property and the interruption of traffic and the convenience of the public within the respective jurisdiction, and the Contractor shall be solely responsible for any damages caused by failure to provide proper safety.

The Contractor will be held responsible for and be required to make restitution, at its own expense, for all damage to persons or property caused by the Contractor or subcontractor, or the agents, or

employees of either during the progress of the Work and until its final Acceptance.

1.04 FENCES

The Contractor shall take necessary means to install temporary fencing along perimeter to protect the project site while work is underway as well as to protect adjacent property including the installation of Temporary Fencing. Cost for providing Temporary Fencing shall be included in the various bid items and no additional compensation will be allowed.

1.05 TEMPORARY ENCLOSURES

When sandblasting, spray painting, spraying of insulation, or other activities inconveniencing or dangerous to property or the health of employees or the public are in progress, the area of activity shall be enclosed adequately to contain the dust, over-spray, or other hazard. In the event there are no permanent enclosures of the area, or such enclosures are incomplete or inadequate, the Contractor shall provide suitable temporary enclosures.

1.06 ABOVE GRADE PROTECTION (NOT USED).

1.07 WORKING HOURS

Construction shall be allowed only between the hours of eight (8:00) a.m. and seven (7:00) p.m. on weekdays and nine (9:00) a.m. to six (5:00) p.m. on Saturdays, unless otherwise approved by the City.

The Contractor shall be responsible for any inspection and additional administration costs incurred by the City, or its agents and representatives, for work by the Contractor outside the hours defined above on weekdays, or any work on weekends or holidays recognized by the City. If an inspection is required at any time other than during regular hours of business, Contractor shall notify the Construction Manager or shall make such request for overtime inspection at the office of the City at least one (1) hour prior to closing time. A fee shall be charged for overtime inspection and shall be determined as follows: the Inspector's hourly rate of pay in effect at that time shall be doubled; such double-time rate shall then be multiplied by a minimum chargeable time of two (2) hours. If the Inspector is required to stay on the job more than two hours, the double-time rate shall be paid for each hour thereafter; portions of hours shall be charged as a full hour. Such costs shall be withheld from the succeeding monthly progress payment. Any work in Section 011010, **SUMMARY OF WORK**, specifically required to be performed outside the normal working hours is excluded from the provisions of this paragraph. The City may also exclude other work performed outside the normal working hours from the provisions of this paragraph.

The Contractor shall notify the Construction Manager at least 24 hours prior to any work outside the normal working hours defined above, on weekends or holidays.

The Contractor shall be responsible for any inspection and additional administration costs incurred by the City, or its agents and representatives for the following conditions:

- A. For work by the Contractor outside the hours defined above on weekdays, or any work on weekends or holidays recognized by the City.
- B. For overtime costs beyond ten (10) hours in any one workday shift, regardless if the ten (10) hours occur in the allowed working hours.

Such costs shall be withheld from the succeeding monthly progress payment. Any work in Section 011010, **SUMMARY OF WORK**, specifically required to be performed outside the normal working hours is excluded from the provisions of this paragraph.

1.08 DUST CONTROL

During the performance of all Work under this Contract, the Contractor shall assume all responsibility for dust control and shall furnish all labor, equipment, and means required to carry out proper and efficient measures wherever and whenever dust control is necessary to prevent the Contractor's operations from producing dust damage and nuisance to persons and property.

Unless the construction dictate otherwise, and unless otherwise approved by the Construction Manager, the Contractor shall furnish and operate a self-loading motor sweeper with spray nozzle at least once each working day to keep paved areas acceptably clean whenever construction, including restoration, is incomplete.

If the contractor does not provide and/or conduct dust control as required above or otherwise approved in writing by the Construction Manager, the City has the right to contract such services separately and withhold those costs from the contractor.

Any claims resulting from dust damage or nuisance shall be borne solely by the Contractor.

1.09 FIRE EXTINGUISHER

Sufficient number of fire extinguishers of the type and capacity required to protect the Work and ancillary facilities, shall be provided and maintained by the Contractor in readily accessible locations.

1.10 USE OF EXPLOSIVES

The use of explosives is prohibited.

1.11 REMOVED MATERIALS

All concrete, paving, reinforcing steel, fencing materials, rock, soil, strips, and other waste material and construction debris shall be removed from the Site by the Contractor and recycled or otherwise disposed of in accordance with applicable regulations and laws.

1.12 CONSTRUCTION CLEANING

Throughout the period of construction the Contractor shall keep the Work site; including work, storage, parking, and employee areas; free and clean of all rubbish and debris, and shall promptly remove from the Site, or from property adjacent to the site of the Work, all unused and rejected materials, surplus earth, concrete, plaster, and debris. In particular the Contractor shall keep the Site clean to maintain safe access and to avoid fire hazard.

1.13 NOISE ABATEMENT

Operations at the Work site shall be performed so as to minimize unnecessary noise. Special measures shall be taken to suppress noise during night hours. Noise levels due to construction activity shall not exceed the levels specified by local ordinance.

Internal combustion engines used on the Work shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated without said muffler.

1.14 DRAINAGE CONTROL

In excavation, fill, and grading operations care shall be taken to disturb the pre-existing drainage pattern as little as possible. Particular care shall be taken not to direct drainage water onto private property or into streets or drainage ways inadequate for the increase flow. Drainage means shall be provided to protect the Work.

1.15 EROSION CONTROL

- A. All excavated areas shall be provided with temporary erosion control measures.
- B. Temporary erosion control shall be required for all areas where natural ground cover is disturbed, all temporary excavation stockpiles, including structures and trench excavations.
- C. Erosion control shall be by means of filter fabric fences or hay bales placed to completely circumvent the down-slope side of any excavated stockpile.
- D. Protected areas shall be regularly inspected and maintained by the Contractor during the course of the Work.
- E. All excavations, spills, and waste materials shall not be placed in areas subject to washout, flooding or natural drainage.
- F. See Section 01060-1.03, **STORM WATER QUALITY CONTROLS**, for additional requirements 1.16 **WARNING DEVICES AND BARRICADES**

The Contractor shall adequately identify and guard all hazardous areas and conditions by visual warning devices and, where necessary, physical barriers. Such devices shall, as a minimum, conform to the requirements of Cal/OSHA.

The Contractor is responsible for providing and maintaining barricades necessary to prevent accidental falls through any unattended open hatches or trenches, or entrances into potentially hazardous work areas in the Contractor's work area.

1.17 TRAFFIC REGULATIONS

A. General

The Contractor shall take all necessary steps to minimize inconvenience to the general public throughout all Work under this Contract. No driveways or private roads shall be blocked without notifying the property owner and access must be restored during all non-working hours. Safe access must be maintained for pedestrian traffic throughout the Work area at all times.

At least one lane of traffic in each direction must be kept open at all times unless prior approval is provided by the City and the Public Agency(ies) which has authority for the right-of-way. No roads shall be blocked or made inaccessible, due to the Contractor's work, without prior written approval of the City and the affected agencies. More stringent requirements may be imposed in the right-of- way permits.

The Contractor shall not block or obstruct fire lanes at any time.

The Contractor shall adopt all practical means to minimize interference to traffic and inconvenience, discomfort, or damage. The Contractor shall protect against damage, any

pling, duct or structures crossing trenching or encountered in the Work and shall be responsible for any damage done to such structures or damage therefrom. The Contractor shall support or replace, any such structures without delay and without any additional compensation, to the entire satisfaction of the Construction Manager. All obstructions to traffic shall be guarded by flagmen as required and by barriers and illuminated at night. The Contractor shall be responsible for all damage to persons and property directly or indirectly caused by its operations, and under all circumstances the Contractor shall comply with the regulations of the City or County, and the laws and regulations of the State of California, relative to safety of persons and property and the interruption of traffic and the convenience of the public within the respective jurisdiction, and the Contractor shall be solely responsible for any damages caused by failure to provide proper safety.

B. Haul Routes

In addition to any haul routes that may be designated in the Contract Documents, or at the preconstruction conference, the Contractor shall furnish evidence that the Public Agency(ies) which has authority for the right-of-ways proposed to be utilized by the Contractor for haul routes has approved the proposed route(s) for all construction traffic created by the Project. Upon approval, the Contractor shall strictly adhere to that route(s) only, unless written permission is obtained from such Public Agency(ies) to change the route(s).

C. Traffic Control

Traffic control shall be in accordance with the California Manual of Uniform Traffic Control Devices. The Contractor shall submit for approval, by the City, its traffic control plans prior to work on public streets.

Traffic control shall include signs, warning lights, reflectors, barriers, and other necessary safety devices and measures, including sufficient flaggers to direct vehicular traffic through the construction areas.

No material or equipment shall be stored/parked where it will interfere with the free and safe passage of public traffic, and at the end of each day's work, and at other times when construction operations are suspended for any reason, the Contractor shall remove all equipment and other obstructions from the public right-of-way.

Should the Contractor appear to be negligent in furnishing warning and protective measures, as above provided, the Construction Manager may direct attention to the existence of a hazard, and the necessary warning and protective measures shall be furnished and installed by the Contractor at its expense.

1.18 ROADS AND FENCES

Roads subject to interference by the prosecution of the Work covered by this Contract shall be kept open, and fences subject to interference shall be maintained by the Contractor during the Work and shall be replaced to their original condition unless specifically shown otherwise on the Drawings. Such signs and barricades as are required by local laws and as necessary for the safe prosecution of the Work shall be provided.

Excavated dirt shall not be stored on roads, paths, or planted areas. Care shall be taken to protect improvements.

1.19 PARKING AND STAGING AREAS (NOT USED)

1.20 TREES AND SHRUBS

Except as noted on the Plans, the Contractor shall not remove trees or shrubs without authorization of the Construction Manager. Injuries to tree roots and limbs shall be avoided. No roots shall be cut or limbs pruned, without prior notification to and review of Contractor's proposed methods by the Construction Manager.

1.21 OFFICE OF CONTRACTOR AT SITE (NOT USED)

1.22 CONTRACTOR'S WORK AND STORAGE AREA

The Contractor shall make its own arrangements for staging, storage and shop areas necessary for the proper execution of the Work.

The Contractor's construction equipment, vehicles, and materials shall not remain in public streets during non-working hours. It shall be the responsibility of the Contractor to transport and store such items at the Contractor's own facility or within construction easements on nonpublic areas at the end of each workday.

1.23 CONSTRUCTION MANAGER'S FIELD OFFICE (NOT USED)

1.24 PHOTOGRAPH AND VIDEO RECORDING OF SITE CONDITIONS

Existing conditions throughout the Project site shall be photographed and videotaped by Contractor before starting construction. Recording shall include and show every detail of existing location, including the current condition of the curb, gutter, sidewalk, landscaping, streetlights, and structures near the Project including backyards, face of buildings, canopies, shades, decking, fences, concrete, irrigation systems, driveways, canals, access roads, plants and landscaping, and any other features within the limits of Work, including Contractor staging areas. Photos and videotape shall be performed in the presence of the Construction Manager.

The Contractor shall provide additional photos and video recording as deemed necessary by the Construction Manager at no additional cost to the Owner.

The Contractor shall not start any work on Site until the photos and video images are submitted and approved by Construction Manager.

PART 2 - PRODUCTS (NOT USED) PART 3 -

EXECUTION (NOT USED)

***** END OF SECTION *****

SECTION 015400 SITE SECURITY AND SAFETY

PART 1 GENERAL

Submittals

See Section 01330 (Submittal Procedures).

Site Security

Safety Program.

Fire Protection Plan

PROTECTION

Continuously maintain protection as necessary to protect the Work, as a whole and in part, and adjacent property and improvements from accidents, injuries or damage.

Properly protect the Work:

With lights, guard rails, temporary covers and barricades.

Enclose excavations with proper barricades.

Brace and secure all parts of the Work against storm and accident.

Provide such additional forms of protection that may be necessary under existing circumstances.

Provide and maintain in good condition all protective measures required to adequately protect the public from hazards resulting from the Work and to exclude unauthorized persons from the Work. When regulated by Building Code, Cal OSHA, or other authority, such legal requirements for protection shall be considered as minimum requirements. Be responsible for the protection in excess of such minimum requirements as required.

CONTROL OF SITE

Ensure that no alcohol, firearms, weapons, or controlled substance enters or is used at the Site. Immediately and permanently remove from the Site any employee found in violation of this provision.

Fencing shall be maintained and relocated when and as necessary to assure staff/ visitor safety while maintaining a positive isolation barrier between the public and the Project Work Site.

The contractor shall be responsible for posting, and maintaining, no less than the following construction site signage: CAUTION CONSTRUCTION; AND KEEP OUT. In the event that the Contractor's insurance carrier mandates that additional safety signs be posted, this contractor shall post and maintain those signs also.

Construction Site signage shall be posted at the entries/exits from the buildings, at every chain link fence corner and in fence line "straight runs" as necessary to assure that the distance between signs does not exceed 500 linear feet.

SITE SECURITY

As part of the Work included within the Contract Price, Contractor shall take and be fully responsible for all reasonably required measures to protect and maintain the security of persons, existing facilities and property at the Site, including without limitation preventing theft, loss, vandalism and improper concealment of personal property of the City of Sausalito and all persons lawfully present on the Site, and including times where workers are not present on the Site. Contractor's measures shall include, at a minimum, maintaining a log of all persons entering and leaving the Site and who they represent, what they are delivering and to whom.

No claim shall be made against City of Sausalito by reason of any act of an employee or trespasser, and Contractor shall repair all damage to City of Sausalito's property resulting from Contractor's failure to provide adequate security measures.

Contractor shall maintain a lock on the Construction access gate at all times.

Contractor shall supply additional security fencing, barricades, lighting, and other security measures as required to protect and control the Site.

SAFETY PROGRAM

Within fifteen (15) days after Notice to Proceed, submit a Safety Program that has been reviewed and approved by an Industrial Hygienist certified by the American Board of Industrial Hygiene or a Certified Safety Professional. The Safety Program shall include the name, certification number, and certification seal of the Industrial Hygienist or Certified Safety Professional. Comply with the Safety Program and all applicable federal, state, and local regulation codes, rules, law and ordinances.

Receipt and/or review of the Safety Program by City of Sausalito, Engineer or City of Sausalito's representative shall not relieve Contractor of any responsibility for complying with all applicable safety regulations.

It is essential that Contractor and each Subcontractor implement an effective and vigorous Safety and Health Program to cover their respective portions of the Work. Subject to Contractor's overall responsibility for Project safety, it shall be understood that the full responsibility for providing a safe place to work with respect to their respective portions of the Work rests with each individual Contractor and Subcontractor.

Safety Program components:

Injury and Illness Prevention Program (IIPP): Conforming to the General Industrial Safety Orders (CCR Title 8, Division 1, Chapter 4, Subchapter 7, Section 3203), and the California Labor Code (Section 6401.7).

Site-Specific Safety and Health Plan (SSHP): Describing health and safety procedures that shall be implemented during the Work in order to ensure safety of the public and those performing the Work. Follow the guidelines for a SSHP listed in CCR Title 8, Division 1, Chapter 4, Subchapter 7, Section 5192, Item (b) (4) f.

Whenever an exposure exists, appropriate personal protective equipment (PPE) shall be used by all affected personnel. Supply PPE to all personnel under Contractor's direction.

SAFETY REQUIREMENTS

Standards: Maintain the Project in accordance with state and local safety and insurance standards.

Hazards Control:

Store volatile wastes in covered metal containers and remove from premises daily.

Prevent accumulation of wastes that create hazardous conditions.

Provide adequate ventilation during use of volatile or noxious substances.

Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

Do not burn or bury rubbish or waste material on the Site.

Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.

Do not dispose of wastes into streams or waterways.

Provide accident information on the forms provided by Contractor. This information shall be provided on the same day as the occurrence of said incident.

SITE SAFETY OFFICER

Designate one of Contractor's staff as "Site Safety Officer" whose duties shall include the responsibility for enforcing the environmental protection provisions of the Contract Documents including safety and health, the requirements of the Occupational Safety and Health Act, and other applicable federal, state and local standards. Submit for review by City of Sausalito Contractor's intended traffic flow plan, security plan, program for temporary structures, housecleaning plan, demolition program, and environmental safety and health plan. After review by City of Sausalito, the implementation and

enforcement of these plans shall become the responsibility of the Site Safety Officer. Any changes in the plans shall be requested by Contractor through the Site Safety Officer for written concurrence by City of Sausalito.

City of Sausalito's risk management representative(s) shall be allowed access to accident/injury and illness reports, inspection reports, scheduling and construction meetings, and safety meetings.

PART 2 PRODUCTS - Not used

PART 3 EXECUTION - Not used

END OF SECTION

SECTION 016000 - PRODUCT REQUIREMENTS

Section includes

- Products
- Product Options and Substitutions
- Product Delivery Requirements
- Shipping Requirements
- Product Storage and Handling Requirements

Products

Products: New material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.

Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

For similar components, provide interchangeable components of the same manufacturer.

Product Options and Substitutions

Summary: This paragraph 1.3 describes procedures for selecting products and requesting substitutions of unlisted materials in lieu of materials named in the Specifications or approved for use in Addenda that were not already the subject of a Document 00660 (Substitution Request Form) submittal as provided in Document 00200 (Instructions to Bidders).

Contractor's Options:

For products specified only by reference standard: Select any product meeting that standard.

For products specified by naming one or more products or manufacturers:

Select products of any named manufacturer meeting specifications.

If product becomes unavailable due to no fault of Contractor, submit Request for Substitution (RFS), including all information contained in this Section 01600 and a fully executed Document 00660 (Request for Substitution), but using the term "Contractor" each place the term "Bidder" appears in that form.

Substitutions:

Except as provided in Document 00200 (Instructions to Bidders) with respect to "or equal" items, City of Sausalito will consider Contractor's substitution requests only when product becomes unavailable due to no fault of Contractor. Requests for review of proposed substitute items will not be accepted from anyone other than Contractor. The RFS shall state the extent, if any, to which the evaluation and acceptance of the proposed substitute will prejudice Contractor's achievement of Substantial Completion on time, and whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with City of Sausalito for work on the Project).

Submit separate RFS (and four copies) for each product and support each request with:

Product identification.

Manufacturer's literature.

Samples, as applicable.

Name and address of similar projects on which product has been used, and dates of installation.

Name, address, and telephone number of manufacturer's representative or sales engineer.

For construction methods: Detailed description of proposed method; drawings illustrating methods.

Where required, itemize a comparison of the proposed substitution with product specified and list significant variations including, but not limited to dimensions, weights, service requirements, and functional differences. If variation from product specified is not pointed out in submittal, variation will be rejected even though submittal was favorably reviewed. Identify all variations of the proposed substitute from that specified in the RFS and indicate available maintenance, repair, and replacement service.

State whether the substitute will require a change in any of the Contract Documents (or provisions of any other direct contract with City of Sausalito for work on the Project) to adapt the design of the proposed substitute, and whether or not incorporation or use of the substitute in connection with Work is subject to payment of any license fee or royalty. Submit data relating to changes in construction schedule.

Include accurate cost data comparing proposed substitution with product and amount of net change in Contract Sum including, but not limited to, an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which will be considered by City of Sausalito in evaluating the proposed substitute. City of Sausalito may require Contractor to furnish additional data about the proposed substitute.

City of Sausalito will not consider substitutions which are for the Contractor's convenience, for acceptance (or, in City of Sausalito's sole discretion, City of Sausalito may make Contractor solely responsible for all resulting costs, expenses and other consequences) when a substitution:

Results in delay meeting construction Milestones or completion dates.

Is indicated or implied on submittals without formal request from Contractor.

Is requested directly by Subcontractor or supplier.

Acceptance will require substantial revision of Contract Documents.

Disrupts Contractor's job rhythm or ability to perform efficiently.

Substitute products shall not be ordered without written acceptance of City of Sausalito.

City of Sausalito will determine acceptability of proposed substitutions and reserve right to reject proposals due to insufficient information.

Accepted substitutions will be evidenced by an approved Substitution Request Form. All Contract Documents requirements apply to Work involving substitutions.

Contractor's Representation and Warranty:

Contractor's RFS constitute a representation and warranty that Contractor:

Has investigated proposed product and determined that it meets or exceeds, in all respects, specified product.

Will provide the same warranty for substitution as for specified product.

Will coordinate installation and make other changes that may be required for Work to be complete in all respects.

Waives claims for additional costs which may subsequently become apparent.

Will compensate City of Sausalito for additional redesign costs associated with substitution. For substitutions made for the contractors convenience the contractor will be responsible for all costs pertaining to substitution request.

Pay all costs incurred by the City of Sausalito associated with acceptance of substitutions including, but not limited to design, review and management activities.

Will be responsible for Construction Schedule slippage due to substitution.

Will be responsible for Construction Schedule delay due to late ordering of available specified products caused by requests for substitution that are subsequently rejected by City of Sausalito.

Will compensate City of Sausalito for all costs; including extra costs of performing Work under Contract Documents, extra cost to other contractors, and any claims brought against City of Sausalito, caused by late requests for substitutions or late ordering of products.

City of Sausalito's Duties:

Review Contractor's RFS with reasonable promptness.

Notify Contractor in writing of decision to accept or reject requested substitution.

Administrative Requirements:

Specified products, materials, or systems for Project may include engineering or on-file standards required by the regulatory agency. Contractor's substitution of products, materials or systems may require additional engineering, testing, reviews, approvals, assurances, or other information for compliance with regulatory agency requirements or both.

Provide all agency approvals or other additional information required and Contractor shall pay additional costs for required redesign, inspection, etc. For substitutions made for the Contractors convenience the Contractor will be responsible for all costs pertaining to substitution request.

Product Delivery Requirements

Deliver products in accordance with manufacturer's instructions.

Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

SHIPPING Requirements

Preparation for Shipment. All equipment shall be suitably packaged to facilitate handling and to protect against damage during transit and storage. All equipment shall be boxed, crated, or otherwise completely enclosed and protected during shipment, handling, and storage. All equipment shall be protected from exposure to the elements and shall be kept dry at all times.

Painted and coated surfaces shall be protected against impact, abrasion, discoloration, and other damage. Painted and coated surfaces which are damaged prior to acceptance of equipment shall be repainted to the satisfaction of City of Sausalito.

Grease and lubricating oil shall be applied to all bearings and similar items.

Shipping. Before shipping each item of equipment shall be tagged or marked as identified in the delivery schedule or on the Shop Drawings. Complete packing lists and bills of material shall be included with each shipment.

Product Storage and Handling Requirements

Store products only in staging area per provisions of Section 01100 (Summary of Work).

Handle, store, and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate-controlled enclosures.

For exterior storage of fabricated products, place on appropriate supports, above ground.

Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.

Store loose granular materials on solid flat surfaces in a well-drained area.

Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

Without limiting the foregoing:

1. Contractor shall bear the responsibility for delivery of equipment, spare parts, special tools, and materials to the Site and shall comply with the requirements specified herein and provide required information concerning the shipment and delivery of the materials specified in Contract Documents. These requirements also apply to any subsuppliers making direct shipments to the Site. Acceptance of the equipment shall be made only after it is installed, tested, placed in operation and found to comply with all the specified requirements.
2. All items shall be checked against packing lists immediately on delivery to the Site for damage and for shortages. Damage and shortages shall be remedied with the minimum of delay.

3. No metalwork (miscellaneous steel shapes and reinforcing steel) shall be stored directly on the ground. Masonry products shall be handled and stored in a manner to hold breakage, chipping, cracking, and spalling to a minimum. Cement, lime, and similar products shall be stored off the ground on pallets and shall be covered and kept completely dry at all times. Pipe fittings and valves may be stored out of doors, but must be placed on wooden blocking. PVC pipe, geomembranes, plastic liner, and other plastic materials shall be stored off the ground on pallets and protected from direct sunlight.
4. Electrical equipment and all equipment with antifriction or sleeve bearings shall be stored in weathertight structures maintained at a temperature above 60°F. Electrical equipment controls, and insulation shall be protected against moisture and water damage. All space heaters furnished in equipment shall be connected and operated continuously.
5. Equipment having moving parts such as gears, bearings, and seals, shall be stored fully lubricated with oil, grease, etc., unless otherwise instructed by the manufacturer. Manufacturer's storage instructions shall be carefully followed by Contractor.
6. When required by the equipment manufacturer, moving parts shall be rotated a minimum of twice a month to ensure proper lubrication and to avoid metal to metal "welding". Upon installation of the equipment, Contractor shall, at the discretion of City of Sausalito, start the equipment at one-half load for an adequate period of time to ensure that the equipment does not deteriorate from lack of use.
7. When required by the equipment manufacturer, lubricant shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. New lubricants shall be put into the equipment by Contractor at the time of acceptance.
8. Equipment and materials shall not show any pitting, rust, decay, or other deleterious effects of storage when installed in the Work.
9. In addition to the protection specified for prolonged storage, the packaging of spare units and spare parts shall be for export packing and shall be suitable for long-term storage in a damp location. Each spare item shall be packed separately and shall be completely identified on the outside of the container.
10. Handling. Stored items shall be laid out to facilitate their retrieval for use in the Work. Care shall be taken when removing the equipment for use to ensure the precise piece of equipment is removed and that it is handled in a manner than does not damage the equipment.
11. Contractor is to complete, and if necessary develop, maintenance forms for each piece of major equipment installed and/or stored until project close out. Maintenance forms are to document the recommended preventive maintenance as specified by the manufacturer of the equipment. Each completed form shall document no more than one piece of equipment. The make, model and serial number of each piece of equipment and the date it was purchased and delivered will be noted in the top right corner of each form. Maintenance forms will be completed at least monthly, according to the manufacturers' recommendations, beginning no later than thirty (30) days from purchase/delivery of the equipment. Copies of these maintenance forms are to be submitted with each pay application, matching the date range of the pay application. At project close a complete set of original maintenance forms are to be 3-hole punched, organized chronologically by equipment make, model and serial number, and will be submitted to the City of Sausalito's Representative no more than thirty (30) days after the date of Substantial Completion. See Section 01100 for the list of equipment to which this applies.

PART 2 PRODUCTS - Not Used.

PART 3 EXECUTION - Not Used.

END OF SECTION

SECTION 017400 CLEANING

PART 1 GENERAL

Section includes

- Progress Cleaning
- Final Cleaning

Progress Cleaning

Contractor shall perform periodic cleaning to ensure that any streets and other City of Sausalito and public properties are maintained free from accumulation of waste materials, dust, mud, and debris.

Where required, Contractor shall wet down surfaces to lay dust and prevent the blowing of dust to nearby residences or public properties.

Contractor shall keep all streets clean and free of dust, mud, and debris resulting from Contractor's operations. Daily cleanup throughout the job will be necessary as Contractor progresses with its Work, but extra attention to cleanup shall be made prior to weekends and holidays. Without limiting the foregoing, Contractor shall remove trench spoil along traveled ways daily; grade and vacuum broom surfaces initially where applicable and later water flush with high-pressure sprays, being careful to avoid downstream contamination.

All dust, mud, spoils, and construction debris shall be removed daily from all roadways, ditches, shoulders, and private property (fills or spoils placed on private property at private property owner's written request excepted).

Disposal of Materials:

As part of the scope of Work included within the Contract Sum, Contractor shall be fully responsible for disposing of all construction debris, dirt and spoils resulting from the Work.

All waste materials, debris, dirt and rubbish shall be recycled or otherwise disposed of at sites to be chosen by Contractor in accordance with applicable local, state, and federal regulations.

Contractor is cautioned that there are regulations governing the disposal of rubble, broken pavement, and similar materials.

Contractor shall become familiarized with the requirements of the agency having jurisdiction over any contemplated disposal site and shall comply with all such requirements.

The contractor shall estimate, log and submit regular reports to the City of Sausalito, an estimate of quantities (e.g. tonnage) of waste materials disposed of for compliance with AB75. Documentation requirements including the nature of materials, destination, volume and tonnage, shall be submitted as follows:

Up-to-date copies of the Waste Reporting Log (Exhibit A of Section 01740) shall be submitted with each payment application per Section 01200 (Measurement and Payment) paragraph 1.7.C.8.

The Contractor shall submit a cumulative report summarizing the nature of materials, destination, volume and tonnage of materials disposed for the preceding calendar year to the City of Sausalito's Representative by January 31st of each year or at the end of the project as part of the contract closeout.

All excess soil from performance of Work shall be disposed at sites to be chosen by Contractor in accordance with applicable local, state, and federal regulations. If Contractor elects to dispose of soil on any private property, prior to any dumping, a letter allowing such dumping shall be obtained from the property owner and presented to City of Sausalito. Contractor is advised that the property owner is required to obtain a fill permit from the applicable government agency (ies). In addition, placement of fill in wetland areas is subject to permit procedures of the US Army Corps of Engineers. At the completion of Work, a letter from each affected property owner will be required releasing Contractor, City of Sausalito and any City of Sausalito consultant from future liability.

If Contractor does not properly clean the Site, in the opinion of City of Sausalito, then City of Sausalito shall have the option of using outside equipment to perform the cleanup and such cost will be withheld from the Contract Sum.

Contractor will take care to mitigate dust during interior renovation activities through proper use of dust controls. Dust controls will include, but not be limited to: dust barricades, walk-off mats, negative air machines and daily custodial clean-up employed by the Contract and at not additional cost to the City of Sausalito

Final Cleaning

Contractor shall execute final cleaning prior to final inspection, using only properly skilled workers.

Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from exposed interior and exterior finished surfaces.

Repair, patch, and touch up marred surfaces to match adjacent finishes.

Clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

Clean equipment and fixtures to a sanitary condition, clean or replace filters of mechanical equipment operated during construction, clean ducts, blowers and coils of units operated without filters during construction.

Clean Site; mechanically sweep paved areas.

Remove waste and surplus materials, rubbish, and construction facilities from Site.

PART 2 PRODUCTS – not used

PART 3 EXECUTION – not used

END OF SECTION

WASTE REPORTING LOG FOLLOWS ON NEXT PAGE

EXHIBIT A
WASTE REPORTING LOG

[] PROJECT

Contract Number []

To: The City of Sausalito

Attention: [Point of Contact]

[Insert POC address]

Telephone: (415) [] Fax: (415) []

From: _____

DISPOSAL DATE	NATURE OF MATERIALS DISPOSED	DESTINATION	VOLUME	TONNAGE

- Per Section 01200 (Measurement and Payment) paragraph 1.7.C.8. a current and up-to-date copy of this log is to be submitted with each Application for Payment.
- Per Section 01740 (Cleaning) paragraph 1.2.E.5 a summary report for each calendar year shall be submitted to the City of Sausalito's Representative by January 31st of each year or at the end of the project as part of the contract closeout. The data shall be summarized by 'Nature of Materials Disposed' and 'Destination' for the entire calendar year.

SECTION 017700 - CONTRACT CLOSEOUT

PART 1 GENERAL

Summary

Section Includes:

Description of contract closeout procedures including:

- Removal of Temporary Construction Facilities
- Substantial Completion
- Final Completion
- Final Cleaning
- Project record documents
- Material, Equipment and Finish Data
- Project Guarantee
- Warranties
- Turn-In
- Release of Claims
- Fire Inspection Coordination
- Building Inspection Coordination

Removal of Temporary Construction Facilities

Remove temporary materials, equipment, services, and construction prior to Substantial Completion inspection.

Clean and repair damage caused by installation or use of temporary facilities.

Restore permanent facilities used during construction to specified condition.

Comply with paragraph 1.12 of Section 15000 (Temporary Facilities and Controls).

Substantial Completion

When Contractor considers Work or designated portion of the Work as Substantially Complete, submit written notice to City of Sausalito's Representative and Architect/Engineer, with list of items remaining to be completed or corrected.

Within reasonable time, City of Sausalito's Representative and Architect/Engineer will inspect to determine status of completion.

Should City of Sausalito's Representative and Architect/Engineer determine that Work is not Substantially Complete, City of Sausalito will promptly notify Contractor in writing, listing all defects and omissions.

Remedy deficiencies and send a second written notice of Substantial Completion. City of Sausalito will reinspect the Work. If deficiencies previously noted are not corrected on reinspection, then Contractor shall pay City of Sausalito's cost of the re-inspection. The costs will be calculated by 2.5 times Direct Pay Roll Expenses and 1.25 times Consultant costs.

When City of Sausalito's Representative and Architect/Engineer determine that Work is Substantially Complete, City of Sausalito will issue Contractor's list of items that remain to be completed or corrected as verified by City of Sausalito, yet does not negate Substantial Completion.

Manufactured units, equipment and systems that require startup must have been started up and run for periods prescribed by City of Sausalito before a Certificate of Substantial Completion will be issued.

A punch list examination will be performed upon Substantial Completion. One follow-up review of punch list items for each discipline will be provided. If further Site visits are required to review punch list items due to incompleteness of the Work by Contractor, Contractor will reimburse City of Sausalito for costs associated with these visits.

Final Completion

Final Completion occurs when Work meets requirements for City of Sausalito's Final Acceptance. When Contractor considers Work is Finally Complete, submit written certification that:

Contractor has inspected Work for compliance with Contract Documents, and all requirements for Final Acceptance have been met.

Except for Contractor maintenance after Final Acceptance, Work has been completed in accordance with Contract Documents and deficiencies listed in the Punch List have been corrected.

Equipment and systems have been tested in the presence of City of Sausalito, and are operative.

Work is complete and ready for final inspection.

In addition to submittals required by Contract Documents, provide submittals required by governing authorities and submit final statement of accounting giving total adjusted Contract Sum, previous payments, and sum remaining due.

When City of Sausalito's Representative and Architect/Engineer find Work is acceptable and **final closeout submittals are complete**, City of Sausalito's Representative will, if so required, issue final Change Order reflecting approved adjustments to Contract Sum not previously made by Change Order. Should City of Sausalito determine that Work is incomplete or defective:

City of Sausalito promptly will so notify Contractor, in writing, listing the incomplete or defective items.

Contractor will promptly remedy the deficiencies and notify the City of Sausalito when it is ready for re-inspection.

When City of Sausalito determines that the Work is acceptable under the Contract Documents, City of Sausalito will request Contractor to make closeout submittals.

Notice of completion executed by City of Sausalito and filed with County.

Final adjustments of accounts:

Submit a final statement of accounting to City of Sausalito, showing all adjustments to the Contract and complete and execute Section 00650 (Agreement and Release of Any and All Claims).

Final Cleaning

Contractor shall comply with all applicable requirements in Section 017400 (Cleaning).

MATERIAL, EQUIPMENT AND FINISH DATA

Submit two (2) hard copy sets and one (1) digital copy, on a compact disc (CD) or flash drive, of data for primary materials, equipment, and finishes as required under each Specification Section prior to final inspection, bound in 8-½ inches by 11 inches three-ring binders with durable plastic covers to City of Sausalito for City of Sausalito's records. All documents submitted shall be neat and legible. Documents shall be original; facsimile or other second generation copies shall not be acceptable.

Turn over supply, spare parts in accordance with the technical specs. Note to Contractors: spare parts are in addition to any commissioning of the equipment.

Project Guarantee

Requirements for Contractor's guarantee of completed Work are included in Article 9 of Section 00700 (General Conditions) Guarantee Work done under Contract against failures, leaks, or breaks or other unsatisfactory conditions due to defective equipment, materials, or workmanship, and perform repair work or replacement required, at Contractor's sole expense, for period of one year from date of Final Acceptance.

Neither recordation of Final Acceptance nor final certificate for payment nor provision of neither the Contract nor partial or entire use or occupancy of premises by City of Sausalito shall constitute acceptance of Work not done in accordance with Contract Documents nor relieve Contractor of liability in respect to express warranties or responsibility for faulty materials or workmanship.

City of Sausalito may make repairs to defective Work as set forth in Section 00700 (General Conditions), paragraph 9.3.

If, after installation, operation, or use of materials or equipment to be provided under Contract proves to be unsatisfactory to City of Sausalito, City of Sausalito shall have right to operate and use materials or equipment until said materials and equipment can, without damage to City of Sausalito, be taken out of service for correction or replacement. Period of use of defective materials or equipment pending correction or replacement shall in no way decrease guarantee period required for acceptable corrected or replaced items of materials or equipment.

Nothing in this Section shall be construed to limit, relieve, or release Contractor's, Subcontractors', and equipment suppliers' liability to City of Sausalito for damages sustained as result of latent defects in equipment caused by negligence of suppliers' agents, employees, or Subcontractors. Stated in another manner, warranty contained in the Contract Documents shall not amount to, nor shall it be deemed to be, waiver by City of Sausalito of any rights or remedies (or time limits in which to enforce such rights or remedies) it may have for defective workmanship or defective materials under laws of this State pertaining to acts of negligence.

Warranties

Execute Contractor's submittals and assemble warranty documents, and installation, **operations and maintenance manuals described in Section 01330 (Submittals)**, executed or supplied by Subcontractors, suppliers, and manufacturers.

Provide table of contents and assemble in 8½ inches by 11 inches three-ring binder with durable plastic cover, appropriately separated and organized.

Include contact names and phone numbers for City of Sausalito personnel to call during warranty period.

Assemble in Specification Section order.

Submit material prior to final **application for payment**.

For equipment put into use with City of Sausalito's permission during construction, submit within fourteen (14) Days after first operation.

For items of Work delayed materially beyond Date of Substantial Completion, provide updated submittal within fourteen (14) Days after acceptance, listing date of acceptance as start of warranty period.

Warranties are intended to protect City of Sausalito against failure of Work and against deficient, defective and faulty materials and workmanship, regardless of sources.

Limitations: Warranties are not intended to cover failures that result from the following:

Unusual or abnormal phenomena of the elements

Vandalism after Substantial Completion

Insurrection or acts of aggression including war

Related Damages and Losses: Remove and replace Work which is damaged as result of defective Work, or which must be removed and replaced to provide access for correction of warranted Work.

Warranty Reinstatement: After correction of warranted Work, reinstate warranty for corrected Work to date of original warranty expiration or to a date not less than one year after corrected Work was done, whichever is later.

Replacement Cost: Replace or restore failing warranted items without regard to anticipated useful service lives.

Warranty Forms: Submit drafts to City of Sausalito for approval prior to execution. Forms shall not detract from or confuse requirements or interpretations of Contract Documents.

Warranty shall be countersigned by manufacturers.

Where specified, warranty shall be countersigned by Subcontractors and installers.

Rejection of Warranties: City of Sausalito reserves right to reject unsolicited and coincidental product warranties that detract from or confuse requirements or interpretations of Contract Documents.

Term of Warranties: For materials, equipment, systems, and workmanship, warranty period shall be one year minimum from date of Final Completion of entire Work except where:

Detailed specifications for certain materials, equipment or systems require longer warranty periods.

Materials, equipment or systems are put into beneficial use of City of Sausalito prior to Final Completion as agreed to in writing by City of Sausalito.

Review meeting: 11 months following date of Final Completion of entire work, an inspection may be conducted by the City of Sausalito's Representative and the Contractor to review and act upon warranties, bonds, and service and maintenance contracts as specified in Section 01315 (Project Meetings).

Warranty of Title: No material, supplies, or equipment for Work under Contract shall be purchased subject to any chattel mortgage, security agreement, or under a conditional sale or other agreement by which an interest therein or any part thereof is retained by seller or supplier. Contractor warrants good title to all material, supplies, and equipment installed or incorporated in Work and agrees upon completion of all Work to deliver premises, together with improvements and appurtenances constructed or placed thereon by Contractor, to City of Sausalito free from any claim, liens, security interest, or charges, and further agrees that neither Contractor nor any person, firm, or corporation furnishing any materials or labor for any Work covered by Contract shall have right to lien upon premises or improvement or appurtenances thereon. Nothing contained in this paragraph, however, shall defeat or impair right of persons furnishing materials or labor under bond given by Contractor for their protection or any rights under law permitting persons to look to funds due Contractor in hands of City of Sausalito.

Turn-In

- A. Contract Documents will not be closed out and final payment will not be made until all personnel Identification Media, vehicle permits, keys issued to Contractor during prosecution of Work, and letters from property owners pursuant to paragraph 1.2.F of Section 01740 (Cleaning) are turned in to City of Sausalito.

Release of Claims

- A. Contract Documents will not be closed out and final payment will not be made until Section 00650 (Agreement and Release of Any and All Claims) is completed and executed by Contractor and City of Sausalito.

Fire Inspection Coordination

- A. Coordinate fire inspection and secure sufficient notice to City of Sausalito to permit convenient scheduling (if applicable).

Building Inspection Coordination

- A. Coordinate with City of Sausalito a final inspection for the purpose of obtaining an occupancy certificate (if applicable).

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION – Not Used

END OF SECTION

SECTION 017800 PROJECT RECORD DOCUMENTS

PART 1 GENERAL

Summary

Section Includes: Administrative and procedural requirements for Project Record Documents.

Project Record Documents required include:

Marked-up copies of Drawings

Marked-up copies of Shop Drawings

Newly prepared Drawings

Marked-up copies of Specifications, Addenda, Change Orders and CCDs

Marked-up Product Data submittals

Record Samples

Field records for variable and concealed conditions

Record information on Work that is recorded only schematically

Maintenance forms for major equipment

Progress Photographs

Specific Project Record Documents requirements that expand requirements of this Section are included in the individual Sections of Divisions 2 through 16.

General Project closeout requirements are included in Section 017700 (Contract Closeout).

Maintenance of Documents and Samples:

Store Project Record Documents and Samples apart from Contract Documents used for construction.

Do not permit Project Record Documents to be used for construction purposes.

Maintain Project Record Documents in good order and in a clean, dry, legible condition.

Make Documents and Samples available at all times for inspection by City of Sausalito.

City of Sausalito will provide one full size blueline set of the Drawings and one Project Manual for Contractor's use for recording as-built conditions.

PROJECT RECORD DRAWINGS

Mark-up Procedure: During the construction period, maintain a set of blueline or blackline prints of Contract Drawings and Shop Drawings for Project Record Documents purposes. Label each document (on first sheet or format page) "PROJECT RECORD" in 2-inch high printed letters. Keep record documents current. Note: A reference by number to a Change Order, CCD, RFI, RFQ, RFP, Field Order or other such document is not acceptable as sufficient record information on any record document. Do not permanently conceal any Work until required information has been recorded.

Mark these Drawings to indicate the actual installation where the installation varies appreciably from the installation shown originally. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later. Items required to be marked include but are not limited to:

Dimensional changes to the Drawings

Revisions to details shown on the Drawings

Depths of various elements of footings in relation to survey datum

Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements

Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure

Locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stub outs, invert elevations, and similar items

Field changes of dimension and detail

Revisions to routing of piping and conduits

Actual equipment locations

Duct size and routing

Changes made by Change Order or CCD

Details not on original Contract Drawings

Mark completely and accurately Project Record Drawing prints of Contract Drawings or Shop Drawings, whichever is the most capable of showing actual physical conditions. Where Shop Drawings are marked, show cross-reference on Contract Drawings location.

Mark Project Record Drawing sets with red, erasable colored pencil; use other colors to distinguish between changes for different categories of the Work at the same location.

Mark important additional information that was either shown schematically or omitted from original Drawings.

Note CCD numbers; alternate numbers, Change Order numbers, and similar identification.

Responsibility for Mark-up: Where feasible, the individual or entity who obtained Project Record Drawing data, whether the individual or entity is the installer, Subcontractor, or similar entity, is required to prepare the mark-up on Project Record Drawings.

Accurately record information in an understandable and legible drawing technique.

Record data as soon as possible after it has been obtained. In the case of concealed installations, record and check the mark-up prior to concealment.

Preparation of Record Drawings: Immediately prior to inspection for Certification of Substantial Completion, review completed marked-up Project Record Drawings with City of Sausalito. When authorized, prepare a full set of correct transparencies of Contract Drawings and Shop Drawings.

Incorporate changes and additional information previously marked on print sets. Erase, redraw, and add details and notations where applicable. Identify and date each Drawing; include the printed designation "PROJECT RECORD DRAWING" in a prominent location on each Drawing.

Refer instances of uncertainty to City of Sausalito for resolution.

Distribution: Whether or not changes and additional information were recorded, organize and bind original marked-up set of prints that were maintained during the construction period into manageable sets. Bind the set with durable paper cover sheets, with appropriate identification, including titles, dates, and other information on cover sheets.

Distribution of Marked-Up Drawings: Submit one full, bound hard copy set and two digital sets, one being in AutoCAD 2010 format the other as Adobe Acrobat pdf format. The marked-up Project Record Drawings sets are to be transmitted to City of Sausalito for City of Sausalito's records.

Shop Drawings and Samples: Maintain as record documents; legibly annotate Shop Drawings and Samples to record changes made after review.

PROJECT RECORD SPECIFICATIONS

During the construction period, maintain one copy of the Project Specifications, including addenda and modifications issued, for Project Record Documents purposes.

Mark the Project Record Specifications to indicate the actual installation where the installation varies substantially from that indicated in Specifications and Modifications issued. Note related Project Record Drawing information, where applicable. Give particular attention to substitutions, selection of product options, Change Order and Construction Change Directive work, and information on

concealed installation that would be difficult to identify or measure and record later.

In each Specification Section where products, materials or units of equipment are specified or scheduled, mark the copy with the proprietary name and model number of the product furnished.

Record the name of the manufacturer, catalog number, supplier and installer, and other information necessary to provide a record of selections made and to document coordination with Project Record Product Data submittals and maintenance manuals.

Note related Project Record Product Data, where applicable, for each principal product specified, indicate whether Project Record Product Data has been submitted in maintenance manual instead of submitted as Project Record Product Data.

Upon completion of mark-up, submit Project Record Specifications to City of Sausalito for City of Sausalito's records.

ADDITIONAL REQUIREMENTS FOR FINAL PROJECT RECORD DOCUMENTS

Prior to Substantial Completion of the Work, City of Sausalito will make available to Contractor originals of the Drawings and Specifications, as Microsoft® Word (1997-2003 format), and AutoCAD 2010 in drawing format (.DWG) files. Note all changes thereon for the final Project Record Documents and provide one set of mylar reproducibles, one set of revised Specifications and one set of disks/CDs/Flash drive to be submitted to City of Sausalito.

After Substantial Completion and before Final Completion, carefully transfer all data shown on the job set of Record Drawings to the corresponding computer files, coordinating the information as required.

Clearly indicate at each affected detail and other drawings a full description of changes made during construction, and the actual location of items as previously specified.

"Cloud" all affected areas.

Stamp each Record Drawing with the following information:

Project Record Document.

Prepared by: Contractor's name, permanent address.

Date prepared.

Contractor's signature.

City of Sausalito Contract Number.

If Contractor is not able to provide project record documents in specified formats, City of Sausalito and Contractor can negotiate a credit back to the City of Sausalito for this work.

PROJECT RECORD PRODUCT DATA

During the construction period, maintain one copy of each Project Record Product Data submittal for Project Record Document purposes.

Mark Project Record Product Data to indicate the actual product installation where the installation varies substantially from that indicated in Project Record Product Data submitted. Include significant changes in the product delivered to the Site, and changes in manufacturer's instructions and recommendations for installation.

Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

Note related Change Orders and mark-up of Project Record Drawings, where applicable.

Upon completion of mark-up, submit a complete set of Project Record Product Data to City of Sausalito for City of Sausalito's records.

Where Project Record Product Data is required as part of maintenance manuals, submit marked-up Project Record Product Data as an insert in the manual, instead of submittal as Project Record Product Data.

Contractor is responsible for mark-up and submittal of Project Record Product Data for its own Work.

Material, Equipment, and Finish Data:

Provide data for primary materials, equipment and finishes as required under each Specification Section.

Submit three (3) hard copy sets and one (1) digital copy, on compact disc (CD) or flash drive prior to final inspection, bound in 8-1/2 inches by 11 inches three-ring binders with durable plastic covers; provide typewritten table of contents for each volume.

*Arrange by **Specification Section number** and give names, addresses, and telephone numbers of Subcontractors and suppliers. List:*

Trade names.

Model or type numbers.

Assembly diagrams.

Operating instructions.

Cleaning instructions.

Maintenance instructions.

Recommended spare parts.

Product data.

MISCELLANEOUS PROJECT RECORD SUBMITTALS

Refer to other Specification Sections for miscellaneous record keeping requirements and submittals in connection with various construction activities. Immediately prior to Substantial Completion, complete miscellaneous records and place in **good** order, properly identified and bound or filed, ready for use and reference. Submit to the City of Sausalito for City of Sausalito's records. Categories of requirements resulting in miscellaneous records include, but are not limited to, the following:

Field records on excavations and foundations

Field records on underground construction and similar work

Survey showing locations and elevations of underground lines

Invert elevations of drainage piping

Surveys establishing lines, levels and positions

Authorized measurements utilizing unit prices or allowances

Records of plant treatment

Ambient and substrate condition tests

Certifications received in lieu of labels on bulk products

Batch mixing and bulk delivery records

Testing and qualification of tradespersons

Documented qualification of installation firms

Load and performance testing

Inspections and certifications by governing authorities

Leakage and water-penetration tests

Fire resistance and flame spread test results

Final inspection and correction procedures

Final As-Built Construction Schedule

Maintenance forms for major equipment

See Section 01600 (Product Requirements)

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION

RECORDING

Post changes and modifications to the Contract Documents as they occur. Do not wait until the end of the Project. City of Sausalito may periodically review Project Record Documents to assure compliance with this requirement.

SUBMITTAL

At completion of Project, deliver Project Record Documents to City of Sausalito.

Accompany submittal with transmittal letter containing:

Date

Project title and number

Contractor's name and address

Number and title of each Project Record Document

Certification that each document as submitted is complete and accurate, and signature of Contractor or Contractor's authorized representative.

END OF SECTION