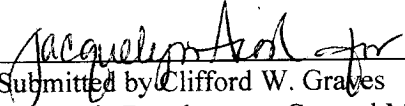


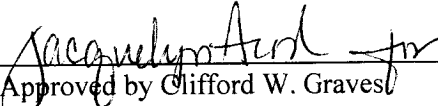


City of Carson Report to Redevelopment Agency

June 7, 2011
New Business Consent

SUBJECT: CONSIDER AN AWARD OF AN AGREEMENT BETWEEN THE CARSON REDEVELOPMENT AGENCY AND PIMA CORPORATION FOR CONSTRUCTION OF THE NEIGHBORHOOD PASSIVE PARK ON CITY-OWNED PROPERTY LOCATED AT 21208 SHEARER AVENUE (CARSON CONSOLIDATED PROJECT AREA)


Submitted by Clifford W. Graves
Economic Development General Manager


Approved by Clifford W. Graves
Interim Executive Director

I. SUMMARY

On June 1, 2011 a public bid was held for the construction of a neighborhood passive park on the approximately 0.39-acre parcel of city-owned property located at 21208 Shearer Avenue (Site) (Exhibit No. 1). This project will entail the construction of a neighborhood passive park with native landscaping. The lowest responsive and responsible bidder is Pima Corporation with a bid in the amount of \$569,500.00.

II. RECOMMENDATION

TAKE the following actions:

1. AWARD the construction agreement for the neighborhood passive park at 21208 Shearer Avenue to the lowest responsive and responsible bidder, Pima Corporation in the amount of \$569,500.00.
2. AUTHORIZE the Agency Chairman to execute the construction agreement following approval as to form by the Agency Counsel.

III. ALTERNATIVES

1. MODIFY and APPROVE the construction agreement as the Agency Board may require.
2. TAKE another action the Agency Board deems necessary.

IV. BACKGROUND

The subject of this report is an agreement (Exhibit No. 2) for the construction of a neighborhood passive park on the Site. The Site has been vacant and remained an eyesore to the community for many years. After analyzing various redevelopment scenarios, the Redevelopment Agency Board (Agency) decided that developing the Site into a neighborhood passive park would be the most effective use of the property. To this end, the Agency approved a design contract with AHBE Landscape Architects on December 7, 2010, for the design and construction oversight of the new neighborhood passive park (Exhibit No. 3). Along with AHBE Landscape Architects, Agency and Public Services Work Group staff participated in the design process.

Agency staff conducted a public bid process for the construction of the new park. The bidding process required contractors to show proof of a valid contractor license, business license, workers' compensation and liability insurance, along with the performance and payment surety bond. The notice inviting bids was advertised in the Daily Breeze and in Our Weekly for three consecutive weeks prior to the bid opening. Bid documents were delivered to McGraw Hill Construction and Bid America for advertising.

On June 1, 2011, bids were received from the contractors listed below. The bid results are available at the City Clerk's Office for public review and are listed below:

<u>Bidder</u>	<u>Bid Amount</u>
C.S. Legacy Construction, Inc. 13263 Yorba Avenue Chino, CA 91710	\$729,695.00
Pima Corporation 2001 S. Barrington Avenue, Suite 312 Los Angeles, CA 90025	\$569,500.00
Seashore Construction, Inc. 1930 Old Tustin Avenue Santa Ana, CA 92705	\$799,386.00

The lowest responsive and responsible bidder for construction of the neighborhood passive park is Pima Construction with a bid amount of \$569,500.00.

V. FISCAL IMPACT

Funding in the amount of \$569,500.00 for construction of the park will come from Agency Tax Allocation Bond Funds.

VI. EXHIBITS

1. Vicinity map. (pg. 4)
2. Construction agreement by and between the Carson Redevelopment Agency and Pima Corporation. (pgs. 5-87)
3. Minutes December 7, 2010, Item No. 3. (pg. 88)

Prepared by: Amelia Soto, Redevelopment Project Analyst

TO: Rev032811

Reviewed by:

City Clerk	City Treasurer
Administrative Services	Development Services
Economic Development Services	Public Services

Vicinity Map

21208 Shearer Avenue

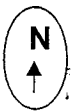
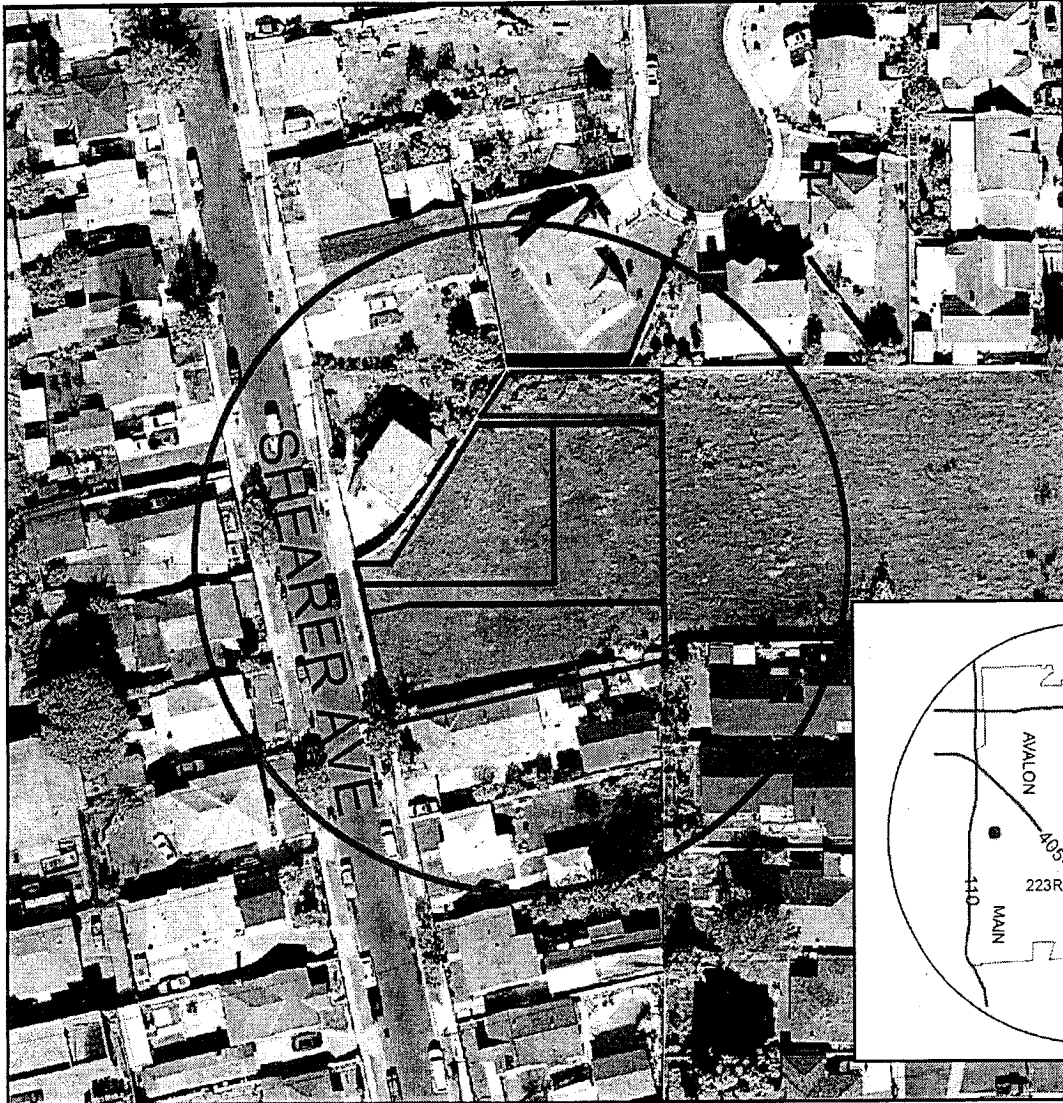


EXHIBIT NO. - 1



CONTRACT DOCUMENTS

PROJECT NO. 1327

**Neighborhood Park Development
21208 Shearer Avenue**

To be submitted
AFTER
Award of Contract

EXHIBIT NO. - 2



CONSTRUCTION AGREEMENT

THIS CONSTRUCTION AGREEMENT ("Agreement") is made and entered on June 7, 2011 pursuant to approval by the Agency Board of the Carson Redevelopment Agency at its meeting held on June 7, 2011 by and between the Carson Redevelopment Agency ("Agency"), a public entity, and PIMA Corporation DBA Advanced Construction, whose address is 2001 S. Barrington Avenue, Ste. 312, Los Angeles, CA 90025 ("Builder"), for the Project, which consists of the construction of a new neighborhood passive park at 21208 Shearer Avenue in Carson California, more particularly described in the Construction Documents defined below ("Site").

The Agency and the Builder agree as follows:

ARTICLE 1

1.1 Contract Documents. The Contract Documents, which constitute the entire agreement between the Agency and the Builder, are enumerated as follows: Bid Documents, including the Notice Inviting Bids, Instructions to Bidders, Bidding Schedule, Bidder's Declaration, Designation of Subcontractors, Bidder's Assurance, and Fair Employment Practices documents; this Agreement; Drawings; Plans; and all addenda issued prior to and all modifications issued after the execution of this Agreement. The Contract Documents are incorporated herein as if attached to this Agreement or repeated herein.

1.2 Construction Documents. The Construction Documents shall consist of those plans, specifications, construction specifications and bid documents for the Project ("Project") and any Change Orders issued after execution of this Agreement. The initial Construction Documents are attached hereto as Exhibit "A" and incorporated herein by this reference. This Agreement shall control in the event of any inconsistency between the Construction Documents and the terms set forth herein.

1.3 Work. Builder shall furnish all necessary labor, tools, materials, appliances and equipment for the construction of the Project ("Work"). Said Work shall be performed in accordance with the Plans, Specifications and other Construction Documents. Builder agrees with Agency to perform and complete in a good and workmanlike manner all work required by the Agreement.

1.4 Costs. The total cost for the Project as set forth in the Construction Documents is Five Hundred Sixty Nine Thousand Five Hundred Dollars (\$569,500.00)

ARTICLE 2

2.1 Services and Responsibilities. Construction services shall be performed by employees of Builder, by qualified construction subcontractors and by suppliers selected and paid by the Builder and acting on behalf of the Builder.



2.1.1 Builder shall be responsible for providing Agency with an executed Faithful Performance Bond in a form as shown in Exhibit C prior to commencement of the Work.

2.1.2 Builder shall be responsible for providing Agency with an extended Payment Bond in a form as shown in Exhibit D prior to commencement of the Work.

2.2 Basic Services.

2.2.1 Unless otherwise provided in the Construction Documents, the Builder shall provide or cause to be provided and shall pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

2.2.2 The Builder shall be responsible for and shall coordinate all construction means, methods, techniques, sequences and procedures.

2.2.3 The Builder shall keep the Agency informed of the progress and quality of the Work.

2.2.4 The Builder shall correct Work which does not conform to the Construction Documents.

2.2.5 The Builder warrants to the Agency for a period of one (1) year from completion and acceptance of the Work by Agency that the materials and equipment incorporated in the Work will be new, unless otherwise specified, and that the Work will be of good quality, free from faults and defects, and in conformance with the Construction Documents. Work not conforming to these requirements shall be corrected in accordance with Article 9.

2.2.6 The Builder shall carry out the construction of the Project in conformity with all applicable laws, including all applicable federal, state and local occupation, safety and health laws, rules, regulations and standards. Without limiting the foregoing, Builder shall construct or cause the Improvements to be constructed in full compliance with all applicable provisions of state, federal and local prevailing wage laws and all rules and regulations promulgated pursuant thereto, including, without limitation, the prevailing wage laws of the State of California set forth in the California Labor Code, Division 2, Part 7 and California Code of Regulations, Title 8. Builder agrees to indemnify, defend and hold Agency harmless from and against any cost, expense, claim, charge or liability relating to or arising directly or indirectly from any breach by or failure of Builder or its agents to comply with such laws, rules or regulations.

2.2.6.1 The Builder hereby agrees that the Builder and any subcontractor under him shall submit weekly to the Agency certified copies of the payroll records for all said workers in conformance with Labor Code Section 1776. The Builder is required to post at the job site the prevailing rate of per diem wages as determined by the Director of the Department of Industrial Relations.



2.2.6.2 Said prevailing rate of per diem wages shall be on file at the City of Carson Department of Public Works, 701 E. Carson Street, Carson, California 90745, and are available to any interested party on request.

2.2.6.3 The Builder shall post at the job site the prevailing rate of per diem wages as determined by the Director of the Department of Industrial Relations.

2.2.6.4 The statutory provisions for penalties for failure to (a) pay prevailing wages, (b) comply with state's wage and hour laws, and (c) comply with the statutory requirements relating to certified copies of payroll records, including the maintenance of the records, their certification, and their availability for inspection will be enforced.

2.2.6.5 The Builder shall comply with the statutory requirements relating to the employment of apprentices.

2.2.6.6 Eight hours of labor is a legal day's work. Any worker's time of service is restricted to eight hours during any calendar day and forty hours during any calendar week, unless overtime compensation is paid at not less than one and one-half times the basic rate of pay.

2.2.7 The Builder shall pay all applicable royalties and license fees. The Builder shall defend suits or claims for infringement of patent rights and shall save the Agency harmless from loss on account thereof, except that the Agency shall be responsible for such loss when a particular design, process or product of a particular manufacturer is required by the Agency.

2.2.8 The Builder shall be responsible to the Agency for acts and omissions of the Builder's employees and parties in privity of contract with the Builder to perform any portion of the Work, including its agents and employees.

2.2.9 The Builder shall keep the premises free from accumulation of waste materials or rubbish caused by the Builder's operations. At the completion of the Work, the Builder shall remove from and about the Site the Builder's tools, construction equipment, machinery, surplus materials, waste materials and rubbish, and shall repair any damage to the Site or adjacent land.

2.2.10 The Builder shall prepare Change Orders for the Agency's approval and execution in accordance with this Agreement and shall have authority to make minor changes in the design and construction of the Project consistent with the intent of this Agreement not involving an adjustment in the contract sum or an extension of the contract time. The Builder shall promptly inform the Agency, in writing, of minor changes in the design and construction and reflect all such changes in the Construction Documents. For the purposes of this Agreement, "minor changes" means any changes in the individual line item cost breakdown in the Construction Documents which does not exceed Five Hundred Dollars (\$500.00).

2.2.11 The Builder shall apply to the City when the Project is completed for a Certificate of Completion which shall establish the Date of Completion, shall include a list of items to be completed or corrected and shall fix the time within which the Builder shall complete items listed therein.



2.2.12 The Builder shall maintain in good order at the construction site one record copy of the drawings, specifications, product data, samples, shop drawings, and Change Orders marked currently to record changes made during construction. These shall be delivered to the Agency upon completion of the construction and prior to final payment.

2.3 Protection of Public Utilities. The Builder shall not be assessed liquidated damages for delay in completion of the project when such delay is caused by failure of the City or Agency of a public utility to provide for removal or relocation of existing utility facilities. The provisions of this section are those required by Section 4215 of the Government Code.

2.4 Liquidated Damages. The amount of liquidated damages is **\$200.00** for each consecutive calendar day.

The provisions of this section are those required by Section 4215 of the Government Code.

ARTICLE 3

3.1 Agency's Representative. The Agency's representative for day-to-day supervision of the Work is Ms Amelia Soto. The authorized representative shall examine the documents submitted by the Builder and shall promptly render decisions pertaining thereto to avoid delay in the orderly progress of design and construction.

3.2 Permits. The Agency shall cooperate with the Builder in securing building and other permits, licenses and inspections, and shall pay the fees for such permits, licenses and inspections if the cost of such fees is not identified as being included in the Builder's Bid. In addition to the requirements above noted, the Builder shall possess a valid City of Carson business license at the time of application for the Construction Permit and for the duration of the Agreement.

3.3 Notice of Defect. If the Agency observes or otherwise becomes aware of a fault or defect in the Work or nonconformity with the Construction Documents, the Agency shall give prompt written notice thereof to the Builder.

3.4 Promote Response. The Agency shall promptly render decisions to avoid delay in the orderly progress of the construction.

ARTICLE 4

4.1 Care and Skill. The Builder shall provide services as expeditiously as is consistent with reasonable skill and care and the orderly progress of design and construction.

4.2 Time. Time is of the essence in this Agreement. The Work to be performed hereunder shall commence upon execution of a Notice to Proceed unless otherwise agreed, and subject to authorized Change Orders, Substantial Completion shall be achieved, within One Hundred Thirty Six (136) working days of approval of this Agreement by the Agency. The Builders's working hours shall be limited to 8:30 a.m. through 3:30 p.m. for work occurring in or

impacting traffic in the roadway, where less than 2 lanes are open to traffic in each direction. Otherwise, or where at least 2 lanes are open to traffic in each direction, the working hours shall be limited to 7:30 a.m. through 4:00 p.m. Working days are limited to normal work days, Monday through Friday, excluding recognized holidays. Deviation from normal working hours will not be allowed without prior written consent of the City of Carson. The Builder shall provide adequate light for proper prosecution of the work, for the safety of the workmen and the public, and for proper inspection.

4.3 Substantial Completion. The Date of Substantial Completion of the Work or an agreed upon portion thereof is the date certified by the architect when construction is substantially complete in accordance with the Construction Documents so the premises can be utilized for its intended use.

4.4 Construction Schedule. The Builder shall commence and complete the Work in accordance with the construction schedule attached as Exhibit "B" hereto.

4.5 Time Extension. If the Builder is delayed in the progress of the Work by acts or neglect of the Agency, Agency's employees, separate contractors employed by the Agency, changes ordered in the Work not caused by the fault of the Builder or its agents, employees or subcontractors, or, labor disputes, fire, unusual delay in transportation, adverse weather conditions not reasonably anticipated, unavoidable casualties, or other causes beyond the Builder's control, the contract time shall be reasonably extended by Change Order.

ARTICLE 5

5.1 Progress Payments.

5.1.1 The Builder shall deliver to the Agency itemized applications for payment which will include an itemized schedule of values by trade showing percent complete for each trade and applicable lien releases and other back up as required by Agency.

5.1.2 Upon receipt of a payment request, Agency shall:

5.1.2.1 Review each payment request as soon as practicable after receipt for the purpose of determining that the payment request is a proper payment request.

5.1.2.2 Any payment request determined not to be a proper payment request suitable for payment shall be returned to the Builder as soon as practicable, but not later than seven days, after receipt. A request returned pursuant to this paragraph shall be accompanied by a document setting forth in writing the reasons why the payment request is not proper.

5.1.2.3 The number of days available to a local agency to make a payment without incurring interest pursuant to this section shall be reduced by the number of days by which a local agency exceeds the seven-day return requirement set forth in paragraph (2) of subdivision (c).

5.1.3 Within thirty days (30) after the Agency's receipt of an undisputed and properly submitted and correct application for payment, the Agency shall make payment to the Builder or Agency shall be required to pay Builder interest at the legal rate set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure.

5.1.4 The application for payment shall constitute a representation by the Builder to the Agency that, to the best of the Builder's knowledge, information and belief, the design and construction have progressed to the point indicated, the quality of the Work covered by the application is in accordance with the Construction Documents, and the Builder is entitled to payment in the amount requested. Agency shall retain from all sums otherwise due to Builder ten percent (10%) of all sums due to Builder for work performed.

5.1.5 The Builder shall pay each subcontractor or supplier, upon receipt of payment from the Agency, out of the amount paid to the Builder on account of such subcontractor's work or such supplier's supplies, the amount to which said subcontractor is entitled in accordance with the terms of the Builder's contract with such subcontractor or supplier.

5.1.6 The Agency shall have no obligation to pay or to be responsible for payment to a subcontractor of the Builder or supplier except as may otherwise be required by law.

5.1.7 The Builder warrants that: (1) title to the Work, materials and equipment covered by an application for payment shall pass to the Agency of the premises (the "Agency"), either by incorporation in construction or upon receipt of payment by the Builder, whichever occurs first; (2) Work, materials and equipment covered by previous application for payment are free and clear of liens, claims, security interests or encumbrances, hereinafter referred to as "liens" and (3) no Work, materials or equipment covered by an application for payment will have been acquired by the Builder, or any other person performing work at the site or furnishing materials or equipment for the Work, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Builder or such other person.

5.1.8 The Builder shall furnish all manufacturers' literature relating to equipment and material, and provide cuts, wiring diagrams, information sheets, and all other information pertaining to same that would be useful to Agency in operation and maintenance of equipment and materials installed pursuant to the Work.

All mechanical trade subcontractors and their representatives shall instruct the Agency's operating personnel in the proper use, care, and emergency repair of all mechanical systems or equipment at the time of competition and before final acceptance of the Work by the Agency. Each subcontractor shall call particular attention to safety measures that should be followed in connection with the applicable portion of the Work.

5.2 Final Payment.

5.2.1 Neither final payment nor the amount retained, if any, shall become due and paid until the Builder submits to the Agency (1) a Release in a format satisfactorily to



Agency, (2) consent of surety, if any, to final payment, (3) a certificate that insurance required by the Construction Documents is in force following completion of the Work, and (4) if required by the Agency, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens to the extent and in such form as may be designated by the Agency.

5.2.2 Final payment constituting the entire unpaid balance due shall be paid by the Agency to the Builder upon the Agency's receipt of the Builder's final application for payment when the Work has been completed and the Agreement fully performed and all applicable lien periods have expired, except for those responsibilities of the Builder which survive final payment, and provided that no liens have been filed.

ARTICLE 6

6.1 Safety. The Builder shall be responsible for initiating, maintaining and providing supervision of safety precautions and programs in connection with the Work. The Builder shall take reasonable precautions for safety of, and shall provide reasonable protection, to prevent damage, injury or loss to: (1) its employees, agents and subcontractors on the Project and other persons who may be affected thereby; (2) the Work and materials and equipment to be incorporated therein; and (3) other property at or adjacent to the Site.

6.2 Damage. The Builder shall be liable for damage or loss to property at the Site caused in whole or in part by the Builder, a subcontractor of the Builder, or anyone directly or indirectly employed by either of them, or by anyone for whose acts they may be liable, except damage or loss attributable to the acts or omissions of the Agency, the Agency's separate contractors or anyone directly or indirectly employed by them or by anyone for whose acts they may be liable and not attributable to the fault or negligence of the Builder. Builder shall take reasonable precautions to prevent damage or loss to property at the Site.

ARTICLE 7

7.1 Insurance. Builder, and any subcontractors performing the Work, shall procure and maintain for the duration of this Agreement from an insurance company that is admitted to write insurance in California or that has a rating of A: VIII in Best's Insurance Guide:

7.1.1 Commercial general liability insurance protecting the Agency and City of Carson and their officials, employees and agents as additional insureds from and against claims, demands, causes of action, liability, costs and expenses for injury to or death of persons, or loss or damage of arising from or connected with Builder's (or the applicable subcontractor's work) under this Agreement in an amount of not less than \$1,000,000.00 combined single limit for each occurrence or \$2,000,000.00 general aggregate.

7.1.2 "Builder's All Risk" course of construction insurance, including earthquake, covering one hundred percent (100%) replacement cost of the completed work to be performed under this Agreement; and

7.1.3 Workers' compensation insurance as required by the Labor Code of the State of California. The Builder must sign and file a statutorily prescribed statement

acknowledging its obligation to secure the payment of workers' compensation to its employees before beginning work. (Labor Code §1861.)

7.1.4. Automobile liability insurance in an amount not less than One Million Dollars (\$1,000,000.00) combined single limit per accident for bodily injury and property damage covering owned, non-owned and hired vehicles. Each policy shall be endorsed to state that coverage shall not be cancelled by either party, or reduced in coverage or in limits except after thirty (30) days' prior written notice to the Agency. Builder's insurance shall be primary with respect to the Agency and City, and any insurance or self-insurance maintained by the Agency shall be excess of Builder's insurance and shall not contribute with it. "Claims made" policies of insurance are not acceptable unless the Agency's Risk Manager determines that "occurrence" policies are not available in the market for the risk being insured. If a "claims made" policy is accepted, it must provide for an extended reporting period of not less than one hundred eighty (180) days.

With respect to damage to property, Agency and Builder hereby waive all rights of subrogation, one against the other, but only to the extent that collectible commercial insurance is available for said damage.

Builder shall furnish the Agency with certificates of insurance and original endorsements for the coverage required above. The certificates and endorsements for each insurance policy shall contain the original signature of a person authorized by that insurer to bind coverage on its behalf. Such insurance as required in this Agreement shall not be deemed to limit the Builder's liability under this Agreement. The Agency reserves the right to require complete, certified copies of all policies at any time.

ARTICLE 8

8.1 Change Orders.

8.1.1 A Change Order is a written order signed by the Agency and Builder and issued after execution of this Agreement authorizing a change in the Work or adjustment in the contract sum or contract time. The contract sum and contract time may be changed only by Change Order.

8.1.2 The Executive Director of the Agency, without invalidating this Agreement, may order changes in the Work within the general scope of this Agreement consisting of additions, deletions or other revisions, and the contract sum and contract time shall be adjusted accordingly. Such changes in the Work shall be authorized by Change Order and shall be performed under applicable conditions of the Construction Documents.

8.1.3 Cost or credit to the Agency resulting from a Change Order shall be determined in one or more of the following ways:

8.1.3.1 by mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

8.1.3.2 by cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

8.1.3.3 by the method provided below.

8.1.4 If the Builder does not agree with the methods set forth in Section 8.1.3 and provided that the Builder receives a written order signed by the Agency, the Builder shall promptly proceed with the Work involved. The cost of such Work shall then be determined on the basis of reasonable expenditures and savings of those performing the Work attributable to the change. In case of an increase in the contract sum, the cost shall include a reasonable allowance for overhead and profit. In case of the methods set forth in Section 8.1.3, the Builder shall keep and present an itemized accounting together with appropriate supporting data for inclusion in a Change Order. Unless otherwise provided in the Construction Documents, costs shall be limited to the following: cost of materials, including sales tax and cost of delivery; cost of labor, including social security, old age and unemployment insurance, and fringe benefits required by agreement or custom; and rental value of equipment and machinery. Pending initial determination of cost to the Agency, payments on account shall be made on the application for payment. The amount of credit to be allowed by the Builder to the Agency for deletion or change which results in a net decrease in the contract sum will be actual net cost. When both additions and credits covering related Work or substitutions are involved in a change, the allowing for overhead and profit shall be figured on the basis of the net increase, if any, with respect to that change.

8.1.5 If unit prices are stated in the Construction Documents or subsequently agreed upon, and if quantities originally contemplated are so changed in a Change Order that application of agreed unit prices to quantities proposed will cause substantial inequity to the Agency or Builder, applicable unit prices shall be equitably adjusted.

8.2 Concealed Conditions. If concealed or unknown conditions of an unusual nature that affect the performance of the Work and vary from those indicated by the Construction Documents are encountered below ground or in an existing structure other than the Work, which conditions are not ordinarily found to exist or which differ materially from those generally recognized as inherent in work of the character provided for in this Agreement, Builder shall give notice to the Agency before conditions are disturbed and in no event later than twenty-one (21) days after first observance of the conditions. The contract sum shall be equitably adjusted for such concealed or unknown conditions by Change Order with in twenty-one days after the Builder becomes aware of the conditions. Agency may also give notice under this Section.

8.3 Regulatory Changes. Builder shall be compensated for changes in the Work necessitated by the enactment or revision of codes, laws or regulations subsequent to the execution of this Agreement.

ARTICLE 9

9.1 Correction of Work. Builder shall promptly correct Work rejected by the Agency or known by the Builder to be defective or failing to conform to the Construction Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed

or completed, and shall correct Work found to be defective or nonconforming within a period of one (1) year after the date of Substantial Completion of the Work or designated portion thereof, or within such longer period provided by any applicable special warranty in the Construction Documents.

9.2 No Limitation. Nothing contained in this Article 9 shall be construed to establish a period of limitation with respect to other obligations of the Builder under this Agreement. Section 9.1 relates only to the specific obligation of the Builder to correct the Work, and has no relationship to the time within which the obligation to comply with the Construction Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Builder's liability with respect to the Builder's obligations other than correction of the Work.

9.3 Stop Work. If the Builder fails to correct defective Work as required or persistently fails to carry out Work in accordance with the Construction Documents, the Agency, by written order signed by the Agency Manager, may order the Builder to stop the Work, or any portion thereof, until the cause for such order has been eliminated, however, the Agency's right to stop the Work shall not give rise to a duty on the part of the Agency to exercise the right for benefit of the Builder or other persons or entities.

9.4 Agency Correction. If the Builder defaults or neglects to carry out the Work in accordance with the Construction Documents and fails within seven (7) days after receipt of notice from the Agency to commence and continue correction of such default or neglect with diligence and promptness, the Agency may give a second notice to the Builder and, seven (7) days following receipt by the Builder of that second notice and without prejudice to Agency's other remedies, the Agency may correct or have corrected such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due to the Builder costs of correcting such deficiencies. If the payments then or thereafter due the Builder are not sufficient to cover the amount of the deduction, the Builder shall pay the difference to the Agency.

ARTICLE 10

10.1 This Agreement shall be governed by the laws of the State of California, the place where the Work is located. Any lawsuits or actions arising in connection with this Agreement shall be filed in the appropriate venue in Los Angeles County, California.

10.2 The heading of articles and paragraphs are for convenience only and shall not modify rights and obligations created by this Agreement, nor be construed in interpreting this Agreement.

10.3 In case a provision of this Agreement is held to be invalid, illegal or unenforceable by a court of competent jurisdiction, the validity, legality and enforceability of the remaining provisions shall not be affected.

10.4 Subcontracts.

10.4.1 The Builder, as soon as practicable after execution of this Agreement, shall furnish to the Agency in writing the names of the persons or entities the Builder will use subcontractors for the Work.

10.4.2 Nothing contained in the Construction Documents shall create any obligation or contractual relationship between the Agency and any third party, including but not limited to subcontractors and suppliers.

10.4.3 To the greatest extent feasible, Contractor shall endeavor to employ residents of the City of Carson in the construction of the Improvements required by this Contract. All solicitations for employment arising in whole or in part out of the performance of this Contract, whether full- or part-time, new or replacement hires, shall be listed with the Carson Career Center. To list employment opportunities, Builder shall contact:

Carson Career Center
Attn: LaToya Butler
One Civic Plaza, Suite 500
Carson, CA 90745
(310) 233-4800
(310) 233-4832 fax

10.5 Work by Agency or Agency's Contractor.

10.5.1 The Agency reserves the right to perform work related to, but not part of, the Work and to award separate contracts in connection with other work at the sites. If the Builder claims that delay or additional cost is involved because of such action by the Agency, the Builder shall make such claims as provided under this Agreement.

10.5.2 The Builder shall give to the Agency's separate contractors reasonable opportunity for storage of their materials and equipment for execution of their work. The Builder shall incorporate and coordinate the Builder's Work with work of the Agency's separate contractors as required by the Construction Documents.

10.6 Indemnification. Builder shall indemnify, hold harmless, save and defend the Agency and the City of Carson, and their officials, agents and employees from and against any and all claims, demands, damage, cause of action, liens, liability, loss, damage, cost and expense, including reasonable attorney's fees, caused by the actual or claimed negligence (active or passive) of the Builder, its agents, employees or subcontractors either as a sole or contributory cause, for loss of, use of, injury to or destruction of any property or for bodily or personal or other injuries, including death, at any time resulting there from, sustained by any person or persons, including but not limited to, any employee or representative of the Agency or contractor arising out of or in connection with, directly or indirectly, any work pursuant to contractor arising this Agreement. The foregoing shall not apply to claims or actions caused by the sole negligence or willful misconduct of Agency, its officers, employees or agents.

10.7 No Assignment. This Agreement shall be binding on successors, assigns and legal representatives of the persons in privity of contract with the Agency or Builder. Builder



shall not assign or transfer its interest in this Agreement or any part hereof without written consent of the Agency.

10.8 Extent of Agreement. This Agreement represents the entire agreement between the Agency and Builder and supersedes any prior negotiations, representations or agreements, whether oral or written. This Agreement may be amended only by written instrument signed by both Agency and Builder, and authorized by the Agency Board.

ARTICLE 11

11.1 Termination by the Agency.

11.1.1 This Agreement may be terminated by the Agency by giving fourteen (14) days' prior notice to the Builder in the event that the Work is abandoned. If such termination occurs, the Agency shall pay the Builder for the Work completed to the date of termination and for proven loss to materials, equipment, tools, and machinery.

11.1.2 If the Builder defaults or persistently fails or neglects to carry out the Work in accordance with the Construction Documents or fails to perform the provisions of this Agreement, the Agency may give notice that the Agency intends to terminate this Agreement. If the Builder fails to correct the defaults within seven (7) days after being given notice, Agency may without prejudice to any other remedy make good such deficiencies and may deduct the cost thereof from the payment due the Builder or, at the Agency's option, may terminate this Agreement and take possession of the site and of all materials, equipment, tools and construction equipment and machinery thereon owned by the Builder and finish the Work by whatever method the Agency may deem expedient.

11.1.3 Agency shall have the right to terminate this Agreement for any cause at anytime by giving thirty (30) days' prior notice to Builder. In addition, if Builder violates any federal regulation relating to this Agreement, Agency may (a) temporarily withhold payment to Builder pending correction of the violation, (b) disallow all or any portion of the cost of Work found to be in violation, or (c) immediately terminate this Agreement notwithstanding any other provision to the contrary. If this Agreement is terminated using the 30-day notice provision, then Agency shall pay Builder as stated above.

11.2 Termination by the Builder. If the Agency fails to make payment when due, the Builder may give notice of the Builder's intention to terminate this Agreement. If the Builder fails to receive payment within thirty (30) days after Agency receives Builder's notice, Builder may terminate this Agreement and recover from the Agency payment for Work completed to the date of termination and for proven losses related to materials, equipment, tools, and machinery.

ARTICLE 12

The Agency shall compensate the Builder, in accordance with Article 5 for basic services, the sum of \$569,500.00.



ARTICLE 13

13.1 Time of Completion. Basic services shall commence on the date stated in a Notice to Proceed from the Agency, and subject to authorized adjustments and to delays not caused by the Builder, Substantial Completion shall be completed one hundred thirty-six (136) working days thereafter.

13.2 Application for Payment. Builder shall submit an application for payment for work completed up to and including the twenty-fifth (25th) day of each month on or about the twenty-fifth (25th) day of each month.

13.3 Attorney's Fees. In the event that litigation arises from any dispute between the parties as to their respective rights and duties under this Agreement, the prevailing party shall be entitled to recover its reasonable attorneys' fees and expenses.

13.4 Nondiscrimination. Under the performance of this Agreement, no person shall be subjected to discrimination on the basis of race, color, religion, national origin, sex, sexual orientation, AIDS, AIDS-related condition, HIV status, age, marital status, disability or handicap, or Vietnam Era veteran status.

13.5 Americans with Disabilities Act. Under the performance of this Agreement, Builder shall comply with the Americans with Disabilities Act of 1990 ("ADA") and shall indemnify and hold harmless Agency for any liability arising from failure to comply therewith.

13.6 Compliance with Law. Builder shall comply with all laws, ordinances rules, and regulations pertaining to the Work, including specifically but not limited to the Building Code of the Carson Municipal Code, Executive Order 11246 of September 24, 1965 entitled "Equal Employment Opportunity" as amended by Executive Order 11375 of October 13, 1967 and as supplemented in 41 Code of Federal Regulations ("CFR") Chapter 60, the Copeland "Anti-Kickback" Act (18 U.S.C. 874) as supplemented in 29 CFR Part 3, Section 306 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330), EPA 15 regulations at 40 CFR Part 15, any energy efficiency standards contained in a state energy conservation plan issued in compliance with the federal Energy Policy and Conservation Act, and the regulations in Exhibit "B" entitled "Section 3 Requirements" which is attached hereto and incorporated herein by this reference.

13.7 Accounting. If payment of any part of the compensation for this Agreement is made with federal, state, or county funds and a condition to the use of those funds by Agency is a requirement that the Agency render an accounting or otherwise account for said funds, then Agency, the U.S. Department of Housing and Urban Development, and the U.S. Comptroller General shall have the right at all reasonable times to examine, audit, make excerpts and transcriptions from any books, records, documents, and papers of Builder that are directly pertinent to this Agreement. Builder must retain all books, records, documents, and papers that are directly pertinent to this Agreement for three (3) years after Agency makes final payment.

13.8 Political Activities. Builder shall not use any funds received under this Agreement for political campaign contributions, promotion of political candidates, or any other political purpose.

13.9 No Peculiar Risk. Builder acknowledges and agrees that the Work to be performed hereunder does not constitute a peculiar risk of bodily harm and that no special precautions are required to perform said Work.

13.10 No Third Party Beneficiary. This Agreement is not intended or designed to or entered for the purpose of creating any benefit or right for any person or entity of any kind that is not a party to this Agreement.

13.11 Continuation. Termination or expiration of this Agreement shall not affect rights or liabilities of the parties which accrued prior to termination or expiration of this Agreement.

13.12 No Waiver. The acceptance of Work or the payment of any money by the Agency shall not operate as a waiver of any provision of this Agreement or of any right to damages or indemnity stated in this Agreement.

13.13 Conflict of Interest; Warranty; and Representation of Non-Collusion. No official, officer, or employee of Agency or City has any financial interest, direct or indirect, in this Agreement, nor shall any official, officer, or employee of Agency or City participate in any decision relating to this Agreement which may affect his/her financial interest or the financial interest of any corporation, partnership, or association in which (s)he is directly or indirectly interested, or in violation of any State or municipal statute, ordinance or regulation. The determination of "financial interest" shall be consistent with State law and shall not include interest found to be "remote" or not an "interest" pursuant to California Government Code Sections 1091 through 1091.5. Participant warrants and represents that (s)he/it has not paid or given, and will not pay or give, to any third party including, but not limited to, any Agency or City official, officer, or employee, any money, consideration, or other thing of value as a result or consequence of obtaining or being awarded this Agreement other than customary expenses of attorneys, advisors, consultants and other similar third parties assisting Participant in the negotiation and documentation of this Agreement. Participant further warrants and represents that (s)he/it has not engaged in any act(s), omission(s), or other conduct or collusion that would result in the payment of any money, consideration, or other thing of value to any third party including, but not limited to, any Agency or City official, officer, or employee, as a result or consequence of obtaining or being awarded any agreement other than customary expenses of attorneys, advisors, consultants, brokers, and other similar third parties assisting Participant in the negotiation and documentation of this Agreement. Participant is aware of and understands that any such act(s), omission(s) or other conduct in violation of applicable law resulting in the payment of money, consideration, or other thing of value will render this Agreement void and of no force or effect.

13.14 Resolution of Claims. In all public works claims, which may arise between a claimant and the Agency which do not exceed the sum of three hundred seventy-five thousand dollars (\$375,000.00), the requirements of California Public Contract Code, Section 20104 through 20104.6, inclusive, shall apply unless Agency has elected to resolve any disputes

pursuant to Public Contract Code Section 10240. Said Code Sections shall apply for the purpose of filing claims and civil actions for claims as defined in Section 20104 of the Public Contract Code. For the purposes of this Section, the term "Claim" means a separate demand by the contractor for (A) a time extension, (B) payment of money or damages arising from work done by, or on behalf of, the claimant pursuant to this Agreement if payment is not expressly provided for or the claimant is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (c) an amount the payment of which disputed by the Agency.

For any claim subject to this Section, the following requirements apply:

13.14.1 The claim shall be in writing and include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. Nothing in this subdivision is intended to extend the time limit or supersede notice requirements otherwise provided by contract for the filing of claims.

13.14.1.1 For claims of less than fifty thousand dollars (\$50,000.00), the Agency shall respond in writing to any written claim within 45 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the Agency may have against the claimant.

13.14.1.2 If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the Agency and the claimant.

13.14.1.3 Agency's written response to the claim, as further documented, shall be submitted to the claimant within 15 days after receipt of the further documentation or within a period of time no greater than that taken by the claimant in producing the additional information, whichever is greater.

13.14.2 For claims of over \$50,000.00 and less than or equal to \$375,000.00, the Agency shall respond in writing to all written claims within 60 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.

13.14.2.1 If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the Agency and the claimant.

13.14.2.2 The Agency's written response to the claim, as further documented, shall be submitted to the claimant within 30 days after receipt of the further documentation, or within a period of time no greater than that taken by the claimant in producing the additional information or requested documentation, whichever is greater.

13.14.3 If the claimant disputes the Agency's written response, or the Agency fails to respond within the time prescribed, the claimant may so notify the Agency, in writing, either within 15 days of receipt of the Agency's response or within 15 days of the

Agency's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the Agency shall schedule a meet and confer conference within 30 days for settlement of the dispute.

13.14.4 Following the meet and confer conference, if the claim or any portion remains in dispute, the claimant may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the claimant submits his or her written claim pursuant to subdivision (a) until the time that claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.

13.14.5 This Section does not apply to tort claims.

13.14.6 The following procedures are established for all civil actions filed to resolve claims subject to this Section:

13.14.6.1 Within 60 days, but no earlier than 30 days, following the filing or responsive pleadings, the court shall submit the matter to non-binding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within 15 days by both parties of a disinterested third person as mediator, shall be commenced within 30 days of the submittal, and shall be concluded within 15 days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.

13.14.6.2 If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act (Title 4 (commencing with Section 2016.010) of Part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.

13.14.6.2.1 Notwithstanding any other provision of law, upon stipulation of the parties, arbitrators appointed for purposes of this article shall be experienced in construction law, and, upon stipulation of the parties, mediators and arbitrators shall be paid necessary and reasonable hourly rates of pay not to exceed their customary rate, and such fees and expenses shall be paid equally by the parties, except in the case of arbitration where the arbitrator, for good cause, determines a different division. In no event shall these fees or expenses be paid by state or county funds.

13.14.6.2.2 In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, any party who after receiving an arbitration award requests a trial de novo but does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, pay the attorney's fees of the other party arising out of trial de novo.

13.14.6.3 The court may, upon request by any party, order any witnesses to participate in the mediation or arbitration process.

13.15 Third Party Claims. Agency shall provide Builder with timely notification of the receipt of any third party claim related to the contract. (Public Contract Code §9201(b).)

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first written above.

“Agency”:

CARSON REDEVELOPMENT AGENCY,
A public body, corporate and politic

By: _____
Chairman Jim Dear

ATTEST:

By: _____
Agency Secretary Helen S. Kawagoe

APPROVED AS TO FORM:
ALESHIRE & WYNDER, LLP

By: _____
Agency Counsel

“Contractor”:

By: _____

Its: _____

By: _____

Its: _____

EXHIBIT "A"

CONSTRUCTION DOCUMENTS

Construction Documents shall consist of those plans, specifications, construction specifications and bid documents for the Project ("Project") and any Change Orders issued after execution of this Agreement.

EXHIBIT "B"

CONSTRUCTION SCHEDULE

June 1, 2011: Bid Opening.

June 22, 2011: Contract between the Carson Redevelopment Agency and Builder executed Notice to proceed issued.

June 29, 2011: Kick-off meeting.

December 22, 2011: Construction period complete.

February 10, 2012: Grand Opening.

December 22, 2013: Landscape Maintenance Period complete.

EXHIBIT "C"

FAITHFUL PERFORMANCE BOND

WHEREAS, the Agency, consisting of one or both of the following described public entities:

- The City of Carson, California
- The Carson Redevelopment Agency

has awarded to _____, hereinafter designated as the "Principal",
a Contract for:

WHEREAS, said Principal is required under the terms of said Contract to furnish a bond for the faithful performance of said Contract;

NOW, THEREFORE, we, _____
_____, as Principal, and

_____ as Surety, are held and firmly bound
unto the Agency in the sum of _____ Dollars
(\$ _____), this amount being not less than one hundred percent (100%) of
the total Contract price, lawful money of the United States of America, for payment of which
sum well and truly to be made we bind ourselves, our heirs, executors, administrators, and
successors, jointly and severally, firmly by these presents. In case suit is brought upon this bond,
the Surety will pay a reasonable attorney's fee to the "Agency" in an amount to be fixed by the
court.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT, if the hereby bounded Principal,
his or its heirs, executors, administrators, successors, or assigns, shall in all things stand to and
abide by, well and truly keep and perform all the undertakings, terms, covenants, conditions and
agreements in the said Contract and any alteration thereof, made as therein provided, all within
the time and in the manner therein designated and in all respects according to their true intent
and meaning, then this obligation shall become null and void; otherwise, it shall be and remain in
full force and effect.



FAITHFUL PERFORMANCE BOND CONTINUED

FURTHER, the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or modification of the Contract Documents, or of the work to be performed there under, shall in any way affect the obligations of this bond, and it does hereby waive notice of any such change, extension of time, alteration or modification of the Contract Documents or of the work to be performed there under.

IN WITNESS WHEREOF, three (3) identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Principal and Surety named herein, on the _____ day of _____, 2011, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

Principal

By _____

Surety

By _____



EXHIBIT "D"

PAYMENT BOND

WHEREAS, the Agency, consisting of one or both of the following described public entities:

- The City of Carson, California
- The Carson Redevelopment Agency

has awarded to _____, as Contractor, a contract for the work described as follows:

AGENCY'S PROJECT NO.:

Project No. 1327, Neighborhood Park Development – 21208 Shearer Avenue

AND WHEREAS, said Contractor is required to furnish a bond in connection with said contract, to secure the payment of claims of laborers, mechanics, material men and other persons, as provided by law;

NOW, THEREFORE, we, the undersigned Contractor and Surety, are held firmly bound unto the Agency in the sum of _____ for which payment well and truly to be made we bind ourselves, our heirs, executors and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT, if said Contractor, its heirs, executors, administrators, successors, assigns, or subcontractors shall fail to pay any of the persons named in Civil Code Section 3181, or amounts due under the Unemployment Insurance Code with respect to work or labor performed under the contract, or any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the Contractor and its subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with respect to such work and labor, then the Surety or Sureties herein will pay for the same in an amount not exceeding the sum specified in this bond, otherwise the above obligation shall be void. In case suit is brought upon this bond, the said Surety will pay a reasonable attorney's fee to the plaintiff(s) and Agency in an amount to be fixed by the court.

This bond shall inure to the benefit of any of the persons named in Civil Code Section 3181 as to give a right of action to such persons or their assigns in any suit brought upon this bond.

Said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or modification of the Contract Documents or of the work to be performed there under shall in any way affect its obligations on this bond, and it does hereby waive notice of such

change, extension of time, alteration or modification of the Contract Documents or of work to be performed there under.

IN WITNESS WHEREOF, we have hereunto set our hands and seals on this _____ day of _____, 2011.

CONTRACTOR

SURETY



CONSTRUCTION SPECIFICATIONS

FOR

PROJECT NO. 1327

**Neighborhood Park Development
21208 Shearer Avenue**

(see following pages)

Construction Plans under separate cover.

**SECTION 02520
PRECAST CONCRETE PAVERS**

PART 1 - GENERAL

1.01 GENERAL CONDITIONS

- A. The requirements of the "General Conditions of the Contract" and of Division 1, "General Requirements", shall apply to all work of this Section with the same force and effect as though repeated in full herein.

1.02 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and supervision in accordance with these specifications and applicable drawings for installation of precast concrete pavers.

1.03 SUBMITTALS

- A. 4 samples of each paving stone of specified color, pattern and size shall be submitted to indicate pavers to be supplied on this job.
- B. Manufacturer's product data.
- C. Documentation of installer's experience.

1.04 PRODUCT HANDLING

- A. Paving stones shall be delivered and unloaded at job site on pallets and bound in such a manner that no damage occurs to the product hauling, handling or unloading at the job site.

1.05 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in the manufacturing of solid concrete interlocking pavers for a period of 5 years. Single layer production, only multi layer production is unacceptable.
- B. Installer: Compact specializing in the installation of solid concrete interlocking pavers with 3 years experience (and accredited by the manufacturer in relation to the paver type and project requirements).

1.06 MOCK-UPS

- A. Provide a 4 foot by 4 foot mock-up of pavers with base and edge as specified.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver pavers in such a manner that no damage occurs during shipping, handling, unloading and storage.

1.08 PROJECT CONDITIONS

- A. Install pavers only under conditions stipulated in manufacturer's instructions.

1.09 SEQUENCING AND SCHEDULING

- A. Coordinate installation of pavers with work of others.

1.10 WARRANTY

A. Installation:

1. Installer shall provide a 1 year written guarantee.
2. Manufacturer shall provide a 1 year written guarantee.

PART 2 - PRODUCTS

2.01 PRODUCT INFORMATION

A. Ackerstone Industries Inc., 14296 Temescal Canyon Road, Corona, California, 91719 or equal.

1. Style: Per drawings.
2. Thickness: 3-1/8 inches (8 cm) x 4 x 16
3. Color: Per drawings.
4. Finish: Per drawings.

2.02 SAND LAYING COURSE

- A. Should be clean washed sand with 100% passing a 3/8 inch sieve size and a maximum of 3% passing a No. 200 sieve size. Use concrete sand. Do not use mason sand.
- B. Thickness of sand laying course should be uniform to insure an even surface. The designed thickness should be a maximum of 1 inch.
- C. The sand laying course should be the responsibility of the paving stone installer.

2.03 BASE COURSE

- A. Base course shall be clean, washed. CAB to match. Cal Trans CAB.

2.03 EDGE RESTRAINT

- A. All edges of the installed pavers shall be restrained. The type of edge restraint shall be approved at locations and to details noted on plans.

PART 3 - EXECUTION

3.01 PREPARATION

- A. A suitable base shall be prepared as specified in related sections of this specification.
- B. The base course shall be shaped to grade and cross section with an allowable tolerance of 1/2 inch (5 mm) relative to specified dimensions below finish design elevation.
- C. The compacted base shall be 4-1/8 inches (105 mm) below final grade for 3-1/8 inches (8 cm) pavers.

3.02 SAND LAYING COURSE

- A. Contractor shall inspect and approve the finished base course (CAB) prior to placement of the sand laying course.
- B. Spread the sand evenly over the area to be paved.
- C. Screed the sand to a level that will produce a 1 inch (25 mm) thickness when the paving stones have been placed and vibrated.
- D. In addition, provide the proper level of sand such that the final elevation of paving stones will nominally 1/4 inch to 3/8 inch higher than the adjacent curb, gutters, other paving, etc., to allow for free drainage from chamfers on block edges.
- E. Do not disturb this sand laying course once screening and leveling to the desired elevation is achieved.

3.03 PLACEMENT

- A. The pavers shall be placed in the approved pattern as noted or shown on the drawings.
- B. The pavers shall be placed in such a manner that the desired pattern is maintained and the joints are butt jointed.
- C. Use string lines to hold all patterns true.
- D. The gaps at the edge of the paver surface shall be filled with standard pavers or with pavers cut to fit.
- E. The cutting of pavers, using a double-headed breaker or a masonry saw, shall leave a clean edge to the traffic surface.
- F. When cutting precision designed areas, a masonry saw shall be used.
- G. Pavers to be alternately selected from at least 3 pallets, working from top to bottom in each pallet stack.
- H. Pavers shall be vibrated into the sand laying course using a vibrator capable of 3,000 to 5,000 pounds compaction force with the surface clean and the joints open.
- I. After vibration, clean masonry type sand containing at least 30% of 1/8 inch (3 mm) particles shall be spread over the paving stone surface, allowed to dry, and vibrated into the joints with additional vibrator passes and brushing so as to completely fill the joints.
- J. Surplus material shall be swiped from the surface, or left on the surface during construction to insure complete filling of the joints during initial use. This sand may also provide surface protection from construction debris.
- K. Upon completion of work covered in this section, the Contractor shall clean up all work areas by removing all debris, surplus material and equipment from the site.

END OF SECTION

**SECTION 02722
DECOMPOSED GRANITE**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Section includes decomposed granite, and the following:
 - 1. Sub-grade Preparation
 - 2. Base Preparation
 - 3. Stabilizer Application
 - 4. Compaction
 - 5. Cleanup

- B. Related work:
 - 1. Section 02210: Finish Grading
 - 2. Section 02900: Landscape Planting

- C. Definitions: The word Architect as used herein shall refer to the Landscape Architect or the Owner's authorized representative.

1.2 SUBMITTALS:

- A. Procedure: In accordance with Division One, or two weeks prior to start of installation.
- B. Submit one pint sample of the specified decomposed granite, with named source.

PART 2 - PRODUCTS

2.1 DECOMPOSED GRANITE:

- A. Decomposed granite is referred to by the abbreviation (D.G.), or referred to as disintegrated granite. All decomposed granite for vehicular surfaces shall conform to the following grading requirements:

Sieve Designation	% Passing
3/8 inch	100
No. 4	95-100
No. 8	75-80
No. 16	55-65

Sieve Designation	% Passing
No. 30	40-50
No. 50	25-35
No. 100	20-25
No. 200	5-15

- B. The portion of D.G retained on the no. 4 sieve shall have a maximum percentage of wear of 50 at 500 revolutions as determined by AASHTO T96.
- C. The portion passing a No. 40 sieve shall have a maximum liquid limit of 25 and maximum plasticity index of 7 as determined by AASHTO T89 and AASHTO T90, respectively.
- D. D.G. to be used for pathways and non-vehicular areas may be 1/4" minus sieve size.
- E. Crushed aggregate screenings shall be free from clay lumps, vegetative matter and deleterious material.

F. See Drawings for D.G. color specification.

2.2 SOIL STABILIZER:

A. Stabilizer shall be a non-toxic, colorless, odorless, organic powder that binds D.G. screenings. The stabilizer shall be as manufactured by Stabilizer Inc., (800) 336-2468, FAX: (602) 852-0718, or equal.

2.3 EDGING

A. Aluminum edging: 3/16" x 5 1/2", manufactured from 6063 extruded aluminum alloy of T-6 hardness with interlock system and 5 stake punch outs fabricated in each strip. Stakes 12" long, lock 1/2" below top of edging.
1. Finish: Black anodized

PART 3 - EXECUTION

3.1 SUBGRADE AND DECOMPOSED GRANITE PREPARATION AND COMPACTION

- A. Subgrade and base under all D.G. shall be prepared and compacted to 90% relative compaction.
- B. Minimum compaction for D.G. surfaces shall be 90% relative compaction.
- C. The finish grade shall be even between the headers with no humps or depressions after the compaction. The Contractor shall provide compaction tests as required by the Architect.
- D. Treat compacted subgrade with pre-emergent herbicide, as recommended by certified pest control advisor.

3.2 SOIL STABILIZER AND DECOMPOSED GRANITE INSTALLATION

- A. Soil stabilizer shall be thoroughly blended with the D.G. screenings prior to installation.
 - 1. The stabilizer shall be mixed at a rate of 12 Lbs. of Stabilizer product per ton of D.G. screenings.
 - 2. Mix stabilizer product in accordance with its manufacturer's instruction.
 - 3. Premixed Stabilizer and D.G. material can be obtained locally by contacting the stabilizer manufacturer and obtaining the location of a local vendor.
 - 4. Not acceptable: drop spreading of the Stabilizer product over raked D.G. screenings and mixing stabilizer by rototilling.
- B. Place the premixed stabilizer product on the desired subgrade in maximum 2" lifts. Rake smooth to the desired grade and cross slope.
- C. After placement and raking, water the Stabilized D.G. to achieve full depth moisture penetration of the placed product. A one-hour rate of 20 gpm per 1,000 sq. ft. should achieve the proper full depth moisture penetration.
- D. While the Stabilized D.G. is still thoroughly moist roll the material with a heavy lawn roller, approximately 1000 to 3000 pounds, and maximum 30" wide, to achieve finish grade and initial compaction. Utilize a hand tamp at edges, around benches, and sign posts. Do not use a wacker or vibratory roller to compact the Stabilized D.G.
 - 1. Compacted finish surface of DG is to be level with adjacent paving, unless otherwise indicated.
 - 2. Compacted finish surface of DG is to be one-inch above finish grade in adjacent planting areas, unless otherwise indicated.

E. Allow the finished surface sufficient time to dry prior to use.

3.3 CLEANUP

A. After all stabilization operations are completed, remove trash, excess materials, empty containers and rubbish from the property. All scars, ruts or other marks in the ground caused by this work shall be repaired and the ground left in a smooth condition throughout the site.

END OF SECTION



**SECTION 02791
PLAYGROUND SURFACE SYSTEMS**

PART 1 - GENERAL

1.01 RUBBER PLAYGROUND SURFACING

- A. USSA Safety Surfacing consists of a rubber shock pad and a top surface of densely tufted Tumbleturf™, or a seamless urethane/rubber topping, (EDPM applied in liquid form onsite-), or self installed one component tiles. USSA Safety Surfacing systems are premium quality in terms of shock absorbency and provide durability, cleanliness and good looks for playground environments.
- B. **WORK INCLUDED:** Work described in this section includes furnishing all labor, materials, equipment and services to install all USSA products as outlined in the contract documents.

1.02 PERFORMANCE REQUIREMENTS

- A. **Area Safety:** Safety surfacing within playground equipment use zones shall meet or exceed the performance requirements of CPSC, ASTM F 1292-99 and CSA Z614-98 that a surface yield both a peak deceleration of no more than 200 g's and a Head Injury Criteria (HIC) value of no more than 1,000 for a head-first fall from the highest accessible portion of play equipment being installed as shown on drawings.
- B. **Manufactured Safety Surface:** For surfaces manufactured for the purpose of playground safety surface, the impact attenuation performance shall be documented by a certificate of compliance.
- C. **Accessibility:** **NOTE:** Children's outdoor play areas shall be in compliance with the Uniform Federal Accessibility Standards (UFAS) FED-STD-795 and the Architectural and Engineer Instructions (9AEI) Design Criteria. The requirements of the Americans with Disabilities Act Accessibility Guidelines (9ADAAG) 28 DFR Part 36 that provide equal or greater accessibility than the requirements of UFAS must also be met in children's outdoor play areas.
- D. **Quality of Assurance:**
 - 1. Coefficient of Friction- ASTM D2047
 - 2. Flammability- ASTM E648-93a
 - 3. Permeability- IHR-4017
 - 4. Attenuation- CPSC and ASTM F 1292

To assure compliance with the above, the installation shall be performed by the manufacturer or a Factory Certified installer.

- E. **Submittals:** The following shall be submitted:
 - 1. Manufacturer's descriptive data and installation instructions, including cleaning and preventative maintenance instructions.
 - 2. Drawings showing shop details of the safety surfacing system, including depths of material, sub-base materials, anchoring systems and edge details.

3. A list of all materials and components to be installed as part of the system, by weight, and/or volume and recommended coverage, including manufacturers name, shipment date, storage requirements, and precautions, and shall state chemical composition and test results to which material has been subjected in compliance with these specifications.
 4. A listing of at least 5 installations where products similar to those proposed for use have been installed and have been in successful service for a minimum period of 3 years. This list shall include owner or purchaser, address of installation, service or maintenance organization, date of installation, contact person, and phone number.
 5. Statement signed by an official authorized to certify on behalf of the manufacturer of the synthetic safety surfacing attesting that the surfacing meets the requirements of ASTM F 1292-99 for a head-first fall from the highest accessible portion of specified playground equipment.
 6. Statement signed by the Manufacturer of the synthetic safety surfacing attesting that all materials under this section shall be installed by the Manufacturer's employees and that playground surfacing installation shall not be performed by anyone other than the Manufacturer
 7. Mock up of safety surface, minimum of 6 inches x 6 inches (150 mm x 150 mm) proposed for this project.
- E. Delivery, Storage and Handling: Materials and equipment shall be delivered and stored in accordance with the manufacturer's recommendations.
- F. Project Site Conditions: Synthetic safety surfacing shall be installed on a dry subsurface, with no prospect of rain within the initial drying period, at temperatures recommended by the manufacturer.
- G. Sequencing and Scheduling: Safety surfacing shall be installed after the playground equipment is installed. Surface installation shall be coordinated by designated individual playground sub-equipment and sub-base installation.
- H. Warranty: Surfacing shall maintain required impact attenuation characteristics and be guaranteed against defects in workmanship or material for a period of 2 years.

PART 2 - PRODUCTS

Safety surfacing shall consist of synthetic safety surfacing meeting requirements of this specification. The type of safety surfacing shall be USSA Safety Surfacing Rubber Shock Pad and a Top Surface of Tumbeturf, or approved equal.

2.01 BASE

- A. Safety Surface: Safety surfacing shall consist of an impact attenuating substrate and wear surface bonded to produce unified system.
- B. It shall consist of a uniform material manufactured in such a way that the top portion meets the requirements specified herein for wear surface.
- C. The type of safety surfacing shall be a poured-in-place system and shall be indicated on the drawings.



2.02 BASE CONTINUED

- A. Cushion Layer Base Material- A Poured Mat Base Layer of SBR Rubber adhered with a polyurethane binder to form a resilient, porous material. The binder cannot be less than 14% of the total weight of the rubber.
1. Binder-100% polyurethane Binding Agent, Methylene Diphenyl Isocyanate, (MDI), based binder with not more than 0.2% Toluene Diphenyl Isocyanate, (TDI), added.
 2. SBR Recycled Rubber is to be Rubber Buffings. Rubber granulate, (crumb rubber), is not acceptable for the Poured Mat Base Layer.

2.03 TOP LAYER OR WEAR COURSE

- A. EPDM Wear Course: Ethylene Propylene Diene Monomer (EPDM) granules adhered with a polyurethane binder formulated to produce an even, uniform surface. Sulfur cured EPDM is not acceptable, Peroxide cured EPDM only. 1-3mm in size. The binder may not be less than 16% or more than 20% of the weight of the rubber.

Standard Colors: Per Plans

- B. Turf Wear Course- Shall Consists of sand/SBR filled, UV stabilized polyethylene and fusion bonded with urethane.
1. Fibers must consist of no less than 90% polyethylene and no more than 10% polypropylene.
 2. Sand must be rounded or sub-rounded, (no angular), washed and dried quartz sand or rubber in-fill.

2.04 BINDER

- A. Binder: Binder for safety surfacing shall be 88-M-41, which is specifically designed for use with rubber granule material for outdoor installations.
- B. 88-M-41 is a single component polyurethane prepolymer formulated using a polymeric foam of Diphenylmethane 4, 4' diisocyanate (MDI).
- C. No toluene diphenyl isocyanate (TDI) shall be used.
- D. No filler materials shall be used in urethane such as plasticizers and the catalyzing agent shall contain no heavy metals.
- E. Weight of polyurethane shall be no less than 8.5 lbs/gal (1.02 Kg/1) and no more than 9.5 lbs/gal (1.14 Kg/1)

PART 3 - EXECUTION

3.01 SITE PREPARATION

- A. Finished Grade: Verify that finished elevations of adjacent areas are as indicated on the drawings, that the appropriate subgrade elevation has been established for the particular safety surface to be installed, and that the subsurface has been installed in a true, even

plane, and sloped to drain as indicated in drawings. Verify the subsurface irregularities have been corrected.

- B. Subsurface: Tolerance of concrete subsurface shall be within 1/8 inch (3.0 mm) in 10 feet (3050 mm). Tolerance of aggregate subsurface shall be within 3/8 inch (10mm) in 10 feet (3050 mm). Verify that aggregate subsurface has been fully compacted to 95%.
- C. Curing of Asphalt and Concrete: If safety surfacing is to be installed, verify that concrete subsurface have cured and that all concrete curing compounds and other deleterious substances that might adversely affect adhesion have been removed. Surface shall be clean and dry.
- D. Drainage: Verify that subsurfacing drainage, if required, has been installed to provide positive drainage.

3.02 INSTALLATION

- A. Safety Surface System: Components of the safety surface system shall be mixed on site in a rotating tumbler to ensure components are thoroughly mixed and are in accordance with manufactures recommendations. Installation of surfacing shall be seamless and completely bonded to subsurface. Material shall cover all foundations and fill around all elements penetrating the surface.
- B. Substrate: Whenever practical, substrate layer of surfacing material shall be installed in one continuous pour on the same day. When a second pour is required, fully coat the edge of the previous work with polyurethane binder to ensure 100% bond with new work. Apply adhesive in small quantities so that new substrate can be placed before the adhesive dries.
- C. Wear Surface: Wearing surface must be of high quality peroxide cured EPDM rubber. Wearing surface shall be bonded to substrate. Apply adhesive to substrate in small quantities so that wearing surface can be applied before adhesive dries. Surface shall be hand towelled to a smooth, even finish. Except where wearing surface is composed of differing color patterns, pour shall be continuous and seamless. Where seams are required due to color change, adjacent colour shall be placed as soon as possible, before initial pour has cured. The edge of initial pour shall be coated with adhesive and wearing surface mixture shall be immediately applied.
- D. Perimeter: Concrete/asphalt perimeter must be saw cut to size indicated on plans, or formed during pour, with surfacing rolled down inside void. Adhesive must be used in the void.
- E. Thickness: Construction methods, such as use of measured screeds 1-1/16 inch (1.0 mm) thicker than the required surfacing depth, shall be employed to ensure that full depth of specified surfacing material is installed. Surfacing system thickness throughout the playground equipment use zone shall be as required to meet the impact attenuation requirements specified herein.
- F. Clean up: Do not allow adhesive on adjacent surface. Immediately clean up spills of excess Adhesive.
- G. Protection: The synthetic safety surface shall be allowed to fully cure in accordance with Manufacturer's instructions. The surface shall be protected by the owner from all traffic during the curing period of 48 hours or as instructed by the manufacturer.

- H. **Manufacturer's Services:** For safety surfacing, service of the manufacturer's representative who is experienced in installation of playground safety surface shall be provided. The representative shall supervise the installation to ensure that the safety surfacing meets the impact attenuation requirements as specified herein.

END OF SECTION



**SECTION 02810
LANDSCAPE IRRIGATION**

PART 1 - GENERAL

1.1 SUMMARY

- A. It is the intent of the specifications and drawings that the finished system is complete in every respect and shall be ready for operation satisfactory to the City.
- B. The work shall include all materials, labor, services, transportation, and equipment necessary to perform the work as indicated on the drawings, in these specifications, and as necessary to complete the contract.

1.2 CONSTRUCTION DRAWINGS

- A. Due to the scale of the drawings, it is not possible to indicate all offsets, fittings, sleeves, etc. which may be required. The Contractor shall carefully investigate the structural and finished conditions affecting all of his work and plan his work accordingly, furnishing such fittings, etc. as may be required to meet such conditions. Drawings are generally diagrammatic and indicative of the work to be installed. The work shall be installed in such a manner as to avoid conflicts between irrigation systems, planting, and architectural features.
- B. All work called for on the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specifications. When an item is shown on the plans but not shown on the specifications or vice versa, it shall be deemed to be as shown on both. The Landscape Architect shall have final authority for clarification.
- C. The Contractor shall not willfully install the irrigation system as shown on the drawings when it is obvious in the field that obstructions, grade differences or discrepancies in area dimensions exist that might not have been considered in engineering. Such obstructions or differences should be brought to the attention of the Landscape Architect as soon as detected. In the event this notification is not performed, the Irrigation Contractor shall assume full responsibility for any revision necessary.

1.3 QUALITY ASSURANCE

- A. Provide at least one English speaking person who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of materials being installed and the manufacturer's recommended methods of installation and who shall direct all work performed under this section.
- B. Manufacturer's directions and detailed drawings shall be followed in all cases where the manufacturer of articles used in this contract furnish directions covering points not shown in the drawings and specifications.
- C. All local, municipal, and state laws, rules and regulations governing or relating to any portion of this work are hereby incorporated into and made a part of these specifications, and their provisions shall be carried out by the Contractor. Anything contained in these specifications shall not be construed to conflict with any of the above rules and regulations 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 rules and regulations, the provisions of these specifications and drawings shall take precedence.

- D. All materials supplied for this project shall be new and free from any defects. All defective materials shall be replaced immediately at no additional cost to City.
- E. The Contractor shall secure the required licenses and permits including payments of charges and fees, give required notices to public authorities, verify permits secured or arrangements made by others affecting the work of this section.

1.4 SUBMITTALS

A. Submittals Materials List:

1. After award of contract and before any irrigation system materials are ordered from suppliers or delivered to the job site, submit to the City a complete list of all irrigation system materials, or processes proposed to be furnished and installed as part of this contract.
 2. The submittals materials list shall include the following information:
 - a. A title sheet with the job name, the contractor's name, contractor's address and telephone number, submittal date and submittal number.
 - b. An index sheet showing the item number (i.e. 1,2,3, etc.); an item description (i.e. sprinkler head); the manufacturer's name (i.e. Hunter Industries); the item model number (i.e. I-40-ADV/36V); and the page(s) in the submittal set that contain the catalog cuts.
 - c. The catalog cuts shall be one or two pages copied from the most recent manufacturer's catalog that indicate the product submitted. Do not submit parts lists, exploded diagrams, price lists or other extra information.
 - d. The catalog cuts shall clearly indicate the manufacturer's name and the item model number. The item model number, all specified options and specified sizes shall be circled on the catalog cuts.
 - e. Submittals for equipment indicated on the legend without manufacturer names, or "as approved", shall contain the manufacturer, Class or Schedule, ASTM numbers and/or other certifications as indicated in these specifications.
 3. Submittal materials list format requirements:
 - a. Submittals shall be provided as one complete package for the project. Multiple partial submittals will not be reviewed.
 - b. Submittal package shall be stapled or bound in such a way as to allow for disassembly for review processing. Submittals shall not have tabs, tab sheets, spiral binding, or any other type of binding that will interfere with automated copying of submittals.
 - c. Submittal package shall have all pages numbered in the lower right hand corner. Page numbers shall correspond with submittal index.
 - d. Re-submitted packages must be revised to include only the equipment being re-submitted. Equipment previously reviewed and accepted shall not be re-submitted in the materials list/index sheet or in the catalog cut sheet package.
- B. Substitutions: If the Irrigation Contractor wishes to substitute any equipment or materials for those equipment or materials listed on the irrigation drawings and specifications, he may do so by providing the following information to the Landscape Architect or City's authorized representative for approval.
1. Provide a written statement indicating the reason for making the substitution.
 2. Provide catalog cut sheets, technical data, and performance information for each substitute item.
 3. Provide in writing the difference in installed price if the item is accepted.
- C. The Landscape Architect or City's authorized representative will allow no substitutions without prior written acceptance.

- D. Manufacturer's warranties shall not relieve the Contractor of his liability under the guarantee. Such warranties shall only supplement the guarantee.
- E. The Landscape Architect or City's authorized representative will not review the submittal package unless provided in the format described above.

1.5 EXISTING CONDITIONS

- A. The Contractor shall verify and be familiar with the locations, size and detail of points of connection provided as the source of water, and electrical supply connection to the irrigation system.
- B. Irrigation design is based on the available static water pressure shown on the drawings. Contractor shall verify static water on the project prior to the start of construction. Should a discrepancy exist, notify the Landscape Architect and City's authorized representative prior to beginning construction.
- C. Prior to cutting into the soil, the Contractor shall locate all cables, conduits, sewer septic tanks, and other utilities as are commonly encountered underground and he shall take proper precautions not to damage or disturb such improvements. If a conflict exists between such obstacles and the proposed work, the Contractor shall promptly notify the Landscape Architect and City who will arrange for relocations. The Contractor will proceed in the same manner if a rock layer or any other such conditions are encountered.
- D. The Contractor shall protect all existing utilities and features to remain on and adjacent to the project site during construction. Contractor shall repair, at his own cost; all damage resulting from his operations or negligence.
- E. The Irrigation Contractor shall coordinate with the General Contractor for installation of required sleeving as shown on the plans prior to paving operations.
- F. The Contractor shall verify and be familiar with the existing irrigation systems in areas adjacent to and within the Project area of work.
- G. The Contractor shall protect all existing irrigation systems, in areas adjacent to and within the project area of work, from damage due to his operations.
- H. Contractor shall notify City's Representative if any existing system is temporarily shut off, capped or modified. Provide 48-hour notice, prior to turning off or modifying any existing irrigation system.
- I. The Contractor shall repair or replace all existing irrigation systems, in areas adjacent to and within the project area of work, damaged by the construction of this project. Adjacent irrigation systems shall be made completely operational and provide complete coverage of the existing landscaped areas. All repairs shall be complete to the satisfaction of the City's Representative.
- J. The contractor shall provide bore holes under any existing pavement or paving encountered for the required lateral, mainline and low voltage control wire sleeving. Bore holes under 2 inches in diameter and smaller shall be made with a BulletMole® underground boring tool as manufactured by Dimension Tools, LLC (Contact telephone number (888)-650-5554 or at www.bulletmole.com). Bore holes larger than 2 inches in diameter shall be made with an approved mechanical boring tool. No air jacking or hydraulic boring of any kind shall be allowed.

1.6 INSPECTIONS

- A. The Contractor shall permit the Landscape Architect and City's authorized representative to visit and inspect at all times any part of the work and shall provide safe access for such visits.
- B. Where the specifications require work to be tested by the Contractor, it shall not be covered over until accepted by the Landscape Architect, City's authorized representative, and/or governing agencies. The Contractor shall be solely responsible for notifying the Landscape Architect, City, and governing agencies, a minimum of 48 hours in advance, where and when the work is ready for testing. Should any work be covered without testing or acceptance, it shall be, if so ordered, uncovered at the Contractor's expense.
- C. Inspections will be required for the following at a minimum:
 - 1. Pre-construction meeting.
 - 2. System layout.
 - 3. Pressure test of irrigation mainline (Four hours at 125 PSI or 120% of static water pressure, whichever is greater.) Mainline pressure loss during test shall not exceed 2 PSI.
 - 4. Coverage test of irrigation system. Test shall be performed prior to any planting.
 - 5. Final inspection prior to start of maintenance period.
 - 6. Final acceptance prior to turnover.
- D. Site observations and testing will not commence without the field record drawings as prepared by the Irrigation Contractor. Record drawings must be complete and up to date for each site visit.
- E. Work that fails testing and is not accepted will be retested. Hourly rates and expenses of the Landscape Architect, City's authorized representative, and governing agencies for re-inspection or retesting will be paid by the Irrigation Contractor at no additional expense to City.

1.7 STORAGE AND HANDLING

- A. Use all means necessary to protect irrigation system materials before, during, and after installation and to protect the installation work and materials of all other trades. In the event of damage, immediately make all repairs and replacements necessary to the acceptance of the Landscape Architect and City and at no additional cost to the City.
- B. Exercise care in handling, loading, unloading, and storing plastic pipe and fittings under cover until ready to install. Transport plastic pipe only on a vehicle with a bed long enough to allow the pipe to lay flat to avoid undue bending and concentrated external load.

1.8 CLEANUP AND DISPOSAL

- A. Dispose of waste, trash, and debris in accordance with applicable laws and ordinances and as prescribed by authorities having jurisdiction. Bury no such waste material and debris on the site. Burning of trash and debris will not be permitted. The Contractor shall remove and dispose of rubbish and debris generated by his work and workmen at frequent intervals or when ordered to do so by the City's authorized representative.
- B. At the time of completion the entire site will be cleared of tools, equipment, rubbish and debris which shall be disposed of off-site in a legal disposal area.

1.9 TURNOVER ITEMS

- A. Record Drawings:

1. Record accurately on one set of drawings all changes in the work constituting departures from the original contract drawings and the actual final installed locations of all required components as shown below.
 2. The record drawings shall be prepared to the satisfaction of the City. Prior to final inspection of work, submit record drawings to the Landscape Architect or City's authorized representative.
 3. All record drawings shall be prepared using AutoCAD 2012 drafting software and the original irrigation drawings as a base. No manual drafted record drawings shall be acceptable. The Contractor may obtain digital base files from the Landscape Architect or City's authorized representative.
 4. If the Contractor is unable to provide the AutoCAD drafting necessary for the record drawings the irrigation designer does provide record drawing drafting as a separate service.
 5. Prior to final inspection of work, submit record drawings plotted onto vellum sheets for review by the Landscape Architect or City's authorized representative. After acceptance by the Landscape Architect, City inspector or City's authorized representative re-plot the record drawings onto reproducible Mylar sheets. The Contractor shall also provide record drawing information on a digital AutoCAD Release 2012 drawing file. All digital files shall be provided on a compact disc (CD) clearly marked with the project name, file descriptions and date.
 - a. Record drawing information and dimensions shall be collected on a day-to-day basis during the installation of the pressure mainline to fully indicate all routing locations and pipe depths. Locations for all other irrigation equipment shall be collected prior to the final inspection of the work.
 - b. Two dimensions from two permanent points of reference such as buildings, sidewalks, curbs, streetlights, hydrants, etc. shall be shown for each piece of irrigation equipment shown below. Where multiple components are installed with no reasonable reference point between the components, dimensioning may be made to the irrigation equipment. All irrigation symbols shall be clearly shown matching the irrigation legend for the drawings. All lettering on the record drawings shall be minimum 1/8 inch in size.
 6. Show locations and depths of the following items:
 - a. Point of connection (including water POC, backflow devices, master control valves, flow sensors, etc.)
 - b. Routing of sprinkler pressure main lines (dimensions shown at a maximum of 100 feet along routing)
 - c. Isolation valves
 - d. Automatic remote control valves (indicate station number and size)
 - e. Quick coupling valves
 - f. Drip air relief and flush valves
 - g. Routing of control wires where separate from irrigation mainline
 - h. Irrigation controllers (indicate controller number and station count)
 - i. Related equipment (as may be directed)
- B. Controller Charts:
1. Provide one controller chart for each automatic controller. Chart shall show the area covered by the particular controller. The areas covered by the individual control valves shall be indicated using colored highlighter pens. A minimum of six individual colors shall be used for the controller chart unless less than six control valves are indicated.
 2. Landscape Architect or City's authorized representative must approve record drawings before controller charts are prepared.
 3. The chart is to be a reduced copy of the actual "record" drawing. In the event the controller sequence is not legible when the drawing is reduced, it shall be enlarged to a readable size.
 4. When completed and approved, the chart shall be hermetically sealed between two pieces of plastic, each piece being a minimum 20 mils in thickness.

- C. Operation and Maintenance Manuals:
1. Two individually bound copies of operation and maintenance manuals shall be delivered to the Landscape Architect or City's authorized representative at least 10 calendar days prior to final inspection. The manuals shall describe the material installed and the proper operation of the system.
 2. Each complete, bound manual shall include the following information:
 3. Index sheet stating Contractor's address and telephone number, duration of guarantee period, list of equipment including names and addresses of local manufacturer representatives.
 - a. Operating and maintenance instructions for all equipment.
 - b. Spare parts lists and related manufacturer information for all equipment.
- D. Equipment:
1. Supply as a part of this contract the following items:
 - a. Two (2) wrenches for disassembly and adjustment of each type of sprinkler head used in the irrigation system.
 - b. Three 30-inch sprinkler keys for manual operation of control valves.
 - c. Two keys for each automatic controller.
 - d. Two quick coupler keys with a 3/4" bronze hose bib, bent nose type with hand wheel and two coupler lid keys.
 - e. One valve box cover key or wrench.
 - f. Six extra sprinkler heads of each size and type.
 - g. For specified ball valves if required: One (1) 5-foot long valve handle, to fit the specified ball valves.
 2. The above equipment shall be turned over to City's authorized representative at the final inspection.

1.10 COMPLETION

- A. At the time of the pre-maintenance period inspection, the Landscape Architect, City's authorized representative, and governing agencies will inspect the work, and if not accepted, will prepare a list of items to be completed by the Contractor. Punch list to be checked off by contractor and submitted to Landscape Architect or City's Authorized representative prior to any follow-up meeting. This checked off list to indicate that all punch list items have been completed. At the time of the post-maintenance period or final inspection the work will be re-inspected and final acceptance will be in writing by the Landscape Architect, City's authorized representative, and governing agencies.
- B. The City's authorized representative shall have final authority on all portions of the work.
- C. After the system has been completed, the Contractor shall instruct City's authorized representative in the operation and maintenance of the irrigation system and shall furnish a complete set of operating and maintenance instructions.
- D. Any settling of trenches which may occur during the one-year period following acceptance shall be repaired to the City's satisfaction by the Contractor without any additional expense to the City. Repairs shall include the complete restoration of all damage to planting, paving or other improvements of any kind as a result of the work.

1.11 GUARANTEE

- A. The entire sprinkler system, including all work done under this contract, shall be unconditionally guaranteed against all defects and fault of material and workmanship, including settling of backfilled areas below grade, for a period of one (1) year following the filing of the Notice of Completion.

- B. Should any problem with the irrigation system be discovered within the guarantee period, it shall be corrected by the Contractor at no additional expense to City within ten (10) calendar days of receipt of written notice from City. When the nature of the repairs as determined by the City constitute an emergency (i.e. broken pressure line) the City may proceed to make repairs at the Contractor's expense. Any and all damages to existing improvement resulting either from faulty materials or workmanship, or from the necessary repairs to correct same, shall be repaired to the satisfaction of the City by the Contractor, all at no additional cost to the City.
- C. Guarantee shall be submitted on Contractors own letterhead as follows:

GUARANTEE FOR SPRINKLER IRRIGATION SYSTEM

We hereby guarantee that the sprinkler irrigation system we have furnished and installed is free from defects in materials and workmanship, and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear and unusual abuse, or neglect excepted. We agree to repair or replace any defective material during the period of one year from date of filing of the Notice of Completion and also to repair or replace any damage resulting from the repairing or replacing of such defects at no additional cost to the City. We shall make such repairs or replacements within 10 calendar days following written notification by the City. In the event of our failure to make such repairs or replacements within the time specified after receipt of written notice from City, we authorize the City to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.

PROJECT NAME:

PROJECT LOCATION:

CONTRACTOR NAME:

ADDRESS:

TELEPHONE:

SIGNED:

DATE:

PART 2 - MATERIALS

2.1 SUMMARY

Use only new materials of the manufacturer, size and type shown on the drawings and specifications. Materials or equipment installed or furnished that do not meet Landscape Architect's, City's, or governing agencies standards will be rejected and shall be removed from the site at no expense to the City.

2.2 PIPE

- A. Pressure supply line between the water meter and the backflow prevention device shall be type K copper, one size larger than backflow device.
- B. Backflow prevention assemblies, and all other above grade assemblies, shall be constructed of threaded brass pipe and threaded brass fittings the same size as the backflow device, unless otherwise directed.

- C. Pressure supply lines 2 inches in diameter and up to 3 inches in diameter downstream of backflow prevention unit shall be Class 315 solvent weld PVC. Piping shall conform to ASTM D2241.
- D. Non-pressure lines 3/4 inch in diameter and larger downstream of the remote control valve shall be SCH 40 solvent weld PVC conforming to ASTM D1785.
- E. Recycled water PVC pipe to be color-coded purple in color marked on two sides with recycled water warning statements "Caution-Recycled Water". Recycled water piping must be accepted by the local recycled water governing agencies.

2.3 METAL PIPE AND FITTINGS

- A. Brass pipe shall be 85 percent red brass, ANSI, IPS Standard 125 pounds, Schedule 40 screwed pipe.
- B. Fittings shall be medium brass, screwed 125-pound class.
- C. Copper pipe and fittings shall be Type "K" sweat soldered, or brazed as indicated on the drawings.

2.4 PLASTIC PIPE AND FITTINGS

- A. Pipe shall be marked continuously with manufacturer's name, nominal pipe size, schedule or class, PVC type and grade, National Sanitation Foundation approval, Commercial Standards designation, and date of extrusion.
- B. All plastic pipe shall be extruded of an improved PVC virgin pipe compound in accordance with ASTM D2672, ASTM D2241 or ASTM D1785.
- C. All solvent weld PVC fittings shall be standard weight Schedule 40 (and Schedule 80 where specified on the irrigation detail sheet, all mainline fittings shall be Schedule 80 PVC) and shall be injection molded of an improved virgin PVC fitting compound. Slip PVC fittings shall be the "deep socket" bracketed type. Threaded plastic fittings shall be injection molded. All tees and ells shall be side gated. All fittings shall conform to ASTM D2464 and ASTM D2466.
- D. All threaded nipples shall be standard weight Schedule 80 with molded threads and shall conform to ASTM D1785.
- E. All solvent cementing of plastic pipe and fittings shall be a two-step process, using primer and solvent cement applied per the manufacturer's recommendations. Cement shall be of a fluid consistency, not gel-like or ropy. Solvent cementing shall be in conformance with ASTM D2564 and ASTM D2855.
- F. When connection is plastic to metal, female adapters shall be hand tightened, plus one turn with a strap wrench. Joint compound shall be non-lead base Teflon paste, tape, or equal.
- G. All pressure mainlines installed with solvent weld PVC fittings shall be installed with concrete thrust blocking at all directional changes in the mainline routing. Concrete thrust blocking shall not be required when ductile iron fittings and mechanical restraints are specified.

2.5 BACKFLOW PREVENTION UNITS

- A. The backflow prevention unit shall be of the manufacturer, size, and type indicated on the drawings.

- B. The backflow prevention unit shall be installed in accordance with the requirements set forth by local codes.
- C. The backflow enclosure shall be of the manufacturer, size, and type indicated on the drawings.

2.6 VALVES

- A. Ball Valves:
 - 1. Ball valves shall be of the manufacturer, size, and type indicated on the drawings.
 - 2. Ball valves shall be constructed of a bronze or stainless steel body, stainless steel ball and stem. Ball valves shall have threaded connections.
 - 3. All ball valves shall have a minimum working pressure of not less than 150 PSI and shall conform to AWWA standards.
- B. Quick Coupler Valves:
 - 1. Quick coupler valves shall be of the manufacturer, size, and type indicated on the drawings.
 - 2. Quick coupler valves shall be brass with a wall thickness guaranteed to withstand normal working pressure of 150 psi without leakage. Valves shall have 1" female threads opening at base, with two-piece body. Valves to be operated only with a coupler key, designed for that purpose. Coupler key is inserted into valve and a positive, watertight connection shall be made between the coupler key and valve.
 - 3. Vinyl quick coupler cover to be purple in color with the words "Warning-Recycled Water-Do Not Drink" permanently marked on lid.
- C. Automatic Control Valves:
 - 1. Automatic control valves shall be of the manufacturer, size, and type indicated on the drawings.
 - 2. Automatic control valves shall be electrically operated.
 - 3. Provide Christy's valve ID tags for each remote control valve with valve number.

2.7 VALVE BOXES

- A. Valve boxes shall be fabricated from a durable, weather-resistant plastic material resistant to sunlight and chemical action of soils.
- B. The valve box cover shall be purple in color and secured with a hidden latch mechanism or bolts.
- C. The cover and box shall be capable of sustaining a load of 1,500 pounds.
- D. Valve box extensions shall be by the same manufacturer as the valve box.
- E. The plastic irrigation valve box cover shall be an overlapping type.
- F. Automatic control valve, master valve, and flow sensor boxes shall be 16"x11"x12" 'nominal' rectangular size. Valve box covers shall be marked "RCV" with the valve identification number, or "MV", "FS" "heat branded" onto the cover in 1-1/4 inch high letters / numbers.
- G. Drip flush valve and Air relief valve boxes shall be 6" circular size. Valve box covers shall be marked with "FV" or "ARV" "heat branded" onto the cover in 1-1/4 inch high letters.
- H. Quick coupler and ball valve boxes shall be 10" circular size. Valve box covers shall be marked with "QCV" or "BV" "heat branded" onto the cover in 1-1/4 inch high letters.

- I. Valve box cover shall be green in color and permanently marked (attached tags are not acceptable) on valve box cover plate with the words "Warning-Recycled Water-Do Not Drink".

2.8 AUTOMATIC CONTROLLER

- A. Automatic controller shall be of the manufacturer, size, and type indicated on the drawings.
- B. Controller enclosure shall be of the manufacturer, size, and type indicated on the drawings.
- C. Controller shall be grounded according to local codes using equipment of the manufacturer, size, and type indicated on the drawings; or as required by local codes and ordinances.

2.9 ELECTRICAL

- A. All electrical equipment shall be NEMA Type 3, waterproofed for exterior installations.
- B. All electrical work shall conform to local codes and ordinances.

2.10 LOW VOLTAGE CONTROL WIRING

- A. Remote control wire shall be direct-burial AWG-UF type, size as indicated on the drawings, and in no case smaller than 14 gauge.
- B. Connections shall be of the manufacturer, size, and type indicated on the drawings.
- C. Common wires shall be white in color. Control wires shall be red (where two or more controllers are used, the control wires shall be a different color for each controller. These colors shall be noted on the "Record Drawings" plans located on controller door).
- D. Ground wires shall be green in color or bare copper and in no case smaller than 6 gauge.

2.11 IRRIGATION HEADS AND DRIP EMITTERS AND INLINE DRIP TUBING

- A. Irrigation heads, drip emitters and inline drip tubing shall be of the manufacturer, size, type, with radius of throw, operating pressure, and discharge rate indicated on the drawings.
- B. Irrigation heads, drip emitters and inline drip tubing shall be used as indicated on the drawings.
- C. Irrigation heads shall have purple recycled water warning cover.

2.12 DRIP IRRIGATION EQUIPMENT

Drip tubing equipment such as flush valves, air relief valves, wye strainers and pressure regulators shall be of the manufacturer, size, and type indicated on the drawings.

2.13 MISCELLANEOUS EQUIPMENT

- A. Landscape Fabric:
 1. Landscape fabric for valve box assemblies shall be 5.0- oz. weight woven polypropylene weed barrier. Landscape fabric shall have a burst strength of 225 PSI, a puncture strength of 60 lbs. and capable of water flow of 12 gallons per minute per square foot.
 2. Type: DeWitt Pro 5 Weed Barrier or approved equal.



- B. Equipment such as flow sensors, rain sensors, freeze sensors, flush valves, air relief valves, wye strainers, and master valves shall be of the manufacturer, size and type indicated on the drawings.

PART 3 - EXECUTION

3.1 SITE CONDITIONS

- A. Inspections:
1. Prior to all work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
 2. Verify that irrigation system may be installed in strict accordance with all pertinent codes and regulations, the original design, the referenced standards, and the manufacturer's recommendations.
- B. Discrepancies:
1. In the event of discrepancy, immediately notify the Landscape Architect or City's authorized representative.
 2. Do not proceed with installation in areas of discrepancy until all discrepancies have been resolved.
- C. Grades:
1. Before starting work, carefully check all grades to determine that work may safely proceed, keeping within the specified material depths with respect to finish grade.
 2. Final grades shall be accepted by the Engineer before work on this section will be allowed to begin.
- D. Field Measurements:
1. Make all necessary measurements in the field to ensure precise fit of items in accordance with the original design. Contractor shall coordinate the installation of all irrigation materials with all other work.
 2. All scaled dimensions are approximate. The Contractor shall check and verify all size dimensions prior to proceeding with work under this section.
 3. Exercise extreme care in excavating and working near existing utilities. Contractor shall be responsible for damages to utilities, which are caused by his operations or neglect.
- E. Diagrammatic Intent:
The drawings are essentially diagrammatic. The size and location of equipment and fixtures are drawn to scale where possible. Provide offsets in piping and changes in equipment locations as necessary to conform with structures and to avoid obstructions or conflicts with other work at no additional expense to City.
- F. Layout:
1. Prior to installation, the Contractor shall stake out all pressure supply lines, routing and location of sprinkler heads, valves, backflow preventer, and automatic controller.
 2. Layout irrigation system and make minor adjustments required due to differences between site and drawings. Where piping is shown on drawings under paved areas, but running parallel and adjacent to planted areas, install the piping in the planted areas.
- G. Water Supply:
Connections to, or the installation of, the water supply shall be at the locations shown on the drawings. Minor changes caused by actual site conditions shall be made at no additional expense to City.
- H. Electrical Service:

1. Connections to the electrical supply shall be at the locations shown on the drawings. Minor changes caused by actual site conditions shall be made at no additional expense to City.
2. Contractor shall make electrical connections to the irrigation controller. Electrical power source to controller locations shall be provided by others.
3. Contractor shall make electrical connections to the irrigation controller. 230-volt single-phase electrical power source to pump assembly location shall be provided by others per NEC codes.

3.2 TRENCHING

- A. Excavations shall be straight with vertical sides, even grade, and support pipe continuously on bottom of trench. Trenching excavation shall follow layout indicated on drawings to the depths below finished grade and as noted. Where lines occur under paved area, these dimensions shall be considered below subgrade.
- B. Provide minimum cover of 18 inches on pressure supply lines 2 ½ inches and smaller.
- C. Provide minimum cover of 18 inches for control wires.
- D. Provide minimum cover of 36 inches on pressure supply lines under vehicular travel ways.
- E. Provide minimum cover of 12 inches for non-pressure lines.
- F. Pipes installed in a common trench shall have a 4-inch minimum space between pipes.

3.3 THRUST BLOCKS

- A. Thrust blocks must be constructed of Class "B" concrete.
- B. Thrust blocks shall be poured against undisturbed site soil.
- C. PVC fitting joints shall be kept free of concrete. Do not encase fitting in concrete.
- D. Thrust blocking shall be sized to provide the minimum bearing areas as shown below. Bearing areas indicated have been calculated for Class 200 PVC pipe at a test pressure of 150 PSI in soil with 2,000 PSI bearing capacity. Increase thrust block sizing as necessary for varying soil conditions.
 1. Provide a minimum thrust block bearing area of 2.0 square feet on all bends (all degrees) and tees installed on pressure supply lines 4 inches and smaller.

3.4 BACKFILLING

- A. Backfill material on all lines shall be the same as adjacent soil free of debris, litter, and rocks over 1/2 inches in diameter.
- B. Backfill shall be tamped in 4-inch layers under the pipe and uniformly on both sides for the full width of the trench and the full length of the pipe. Backfill materials shall be sufficiently damp to permit thorough compaction, free of voids. Backfill shall be compacted to dry density equal to adjacent undisturbed soil and shall conform to adjacent grades.
- C. Flooding in lieu of tamping is not allowed.
- D. Under no circumstances shall truck wheels be used to compact backfill.

- E. Provide sand backfill a minimum of 4 inches over and under all piping under paved areas.

3.5 PIPING

- A. Piping under existing pavement may be installed by jacking, boring, or hydraulic driving. No hydraulic driving is permitted under asphalt pavement.
- B. Cutting or breaking of existing pavement is not permitted.
- C. Carefully inspect all pipe and fittings before installation, removing dirt, scale, burrs, and reaming. Install pipe with all markings up for visual inspection and verification.
- D. Remove all dented and damaged pipe sections.
- E. All lines shall have a minimum clearance of 4 inches from each other and 12 inches from lines of other trades.
- F. Parallel lines shall not be installed directly over each other.
- G. In solvent welding, use only the specified primer and solvent cement and make all joints in strict accordance with the manufacturer's recommended methods including wiping all excess solvent from each weld. Allow solvent welds at least 15 minutes setup time before moving or handling and 24 hours curing time before filling.
- H. PVC pipe shall be installed in a manner, which will provide for expansion and contraction as recommended by the pipe manufacturer.
- I. Center load all plastic pipe prior to pressure testing.
- J. All threaded plastic-to-plastic connections shall be assembled using Teflon tape or Teflon paste.
- K. For plastic-to-metal connections, work the metal connections first. Use a non-hardening pipe dope on all threaded plastic-to-metal connections, except where noted otherwise. All plastic-to-metal connections shall be made with plastic female adapters.

3.6 CONTROLLER

- A. The exact location of the controller shall be approved by the Landscape Architect or City's authorized representative before installation. The electrical service shall be coordinated with this location.
- B. The Irrigation Contractor shall be responsible for the final electrical hook up to the irrigation controller.
- C. The irrigation system shall be programmed to operate during the periods of minimal use of the design area.

3.7 CONTROL WIRING

- A. Low voltage control wiring shall occupy the same trench and shall be installed along the same route as the pressure supply lines whenever possible.
- B. Where more than one wire is placed in a trench, the wiring shall be taped together in a bundle at intervals of 10 feet. Bundle shall be secured to the mainline with tape at intervals of 20 feet.

- C. All connections shall be of an approved type and shall occur in a valve box. Provide an 18-inch service loop at each connection.
- D. An expansion loop of 12 inches shall be provided at each wire connection and/or directional change, and one of 24 inches shall be provided at each remote control valve.
- E. A continuous run of wire shall be used between a controller and each remote control valve. Under no circumstances shall splices be used without prior approval.

3.8 VALVES

- A. Automatic control valves, quick coupler, and ball valves are to be installed in the approximate locations indicated on the drawings.
- B. Valve shall be installed in shrub areas whenever possible.
- C. Install all valves as indicated in the detail drawings.
- D. Valves to be installed in valve boxes shall be installed one valve per box.
- E. Provide valve ID tags for each remote control valve with valve number.

3.9 VALVE BOXES

- A. Valve boxes shall be installed in shrub areas whenever possible.
- B. Each valve box shall be installed on a foundation of 3/4 inch gravel backfill, 3 cubic feet minimum. Valve boxes shall be installed with their tops 1/2 inch above the surface of surrounding finish grade in lawn areas and 2 inches above finish grade in ground cover areas.

3.10 IRRIGATION HEADS DRIP EMITTERS AND INLINE DRIP TUBING

- A. Irrigation heads, drip emitters and inline drip tubing shall be installed as indicated on the drawings.
- B. Spacing of heads and inline drip tubing shall not exceed maximum indicated on the drawings.
- C. Riser nipples shall be of the same size as the riser opening in the sprinkler body.

3.11 BACKFLOW PREVENTION UNITS

- A. Backflow Prevention Units shall be installed as indicated on the drawings. The backflow prevention unit shall be installed in accordance with the requirements set forth by local codes.
- B. The exact location of the backflow device shall be approved by the Landscape Architect or City's authorized representative before installation.
- C. The contractor shall be responsible for the testing and certification of the backflow device for proper operation. Testing and certification shall be performed by a state qualified backflow tester.

3.12 MISCELLANEOUS EQUIPMENT

- A. Install all assemblies specified herein according to the respective detail drawings or specifications, using best standard practices.

- B. Quick coupler valves shall be set approximately 18 inches from walks, curbs, header boards, or paved areas where applicable.
- C. Install devices such as rain sensors, freeze sensors, flush valves, and air relief valves, master valves and flow sensors as indicated on the drawings and as recommended by the manufacturer.

3.13 FLUSHING THE SYSTEM

- A. Prior to installation of irrigation heads, the valves shall be opened and a full head of water used to flush out the lines and risers.
- B. Irrigation heads shall be installed after flushing the system has been completed.

3.14 ADJUSTING THE SYSTEM

- A. Contractor shall adjust valves, align heads, and check the coverage of each system prior to coverage test.
- B. If it is determined by the Landscape Architect or City's authorized representative that additional adjustments or nozzle changes will be required to provide proper coverage, all necessary changes or adjustments shall be made prior to any planting.
- C. The entire system shall be operating properly before any planting operations commence.
- D. Automatic control valves are to be adjusted so that the irrigation heads, drip emitters and inline drip tubing operate at the pressure recommended by the manufacturer.

3.15 TESTING AND OBSERVATION

- A. Do not allow or cause any of the work of this section to be covered up or enclosed until it has been observed, tested and accepted by the Landscape Architect, City, and governing agencies.
- B. The Contractor shall be solely responsible for notifying the Landscape Architect, City, and governing agencies, a minimum of 48 hours in advance, where and when the work is ready for testing.
- C. When the sprinkler system is completed, the Contractor shall perform a coverage test of each system in its entirety to determine if the water coverage for the planted areas is complete and adequate in the presence of the Landscape Architect.
- D. The Contractor shall furnish all materials and perform all work required to correct any inadequacies of coverage due to deviations from the plans, or where the system has been willfully installed as indicated on the drawings when it is obviously inadequate, without bringing this to the attention of the Landscape Architect. This test shall be accepted by the Landscape Architect and accomplished before starting any planting.
- E. Areas to be maintained for the formal maintenance period shall start maintenance at the same time, as directed by the Landscape Architect, City, and governing agencies. Partial areas will not be released into maintenance prior to completion of items listed in the pre-maintenance review. The maintenance period may not be phased.
- F. If, after the maintenance review, the irrigation systems are not accepted by the Landscape Architect, the contractor shall reimburse the Architect for additional site visits, or additional

time required to review work. All additional time will be billed at the Architect's hourly rate and will be paid for by the contractor at no additional cost to the City.

- G. Final inspection will not commence without record drawings as prepared by the Irrigation Contractor.

3.16 MAINTENANCE

During the maintenance period the Contractor shall adjust and maintain the irrigation system in a fully operational condition providing complete irrigation coverage to all intended plantings.

3.17 COMPLETION CLEANING

Clean up shall be made as each portion of the work progresses. Refuse and excess dirt shall be removed from the site, all walks and paving shall be swept, and any damage sustained on the work of others shall be repaired to original conditions.

END OF SECTION

**SECTION 02870
SITE FURNISHINGS**

PART 1 - GENERAL

1.1 GENERAL CONDITIONS

- A. The requirements of the "General Conditions of the Contract" and of Division 1, "General Requirements", shall apply to all work of this Section with the same force and effect as though repeated in full herein.

1.2 SCOPE OF WORK

- A. Furnish all labor, material, equipment and services necessary to provide site furnishings, complete in place, as shown on the Drawings or in this Specification.
- B. Related work:
1. Concrete
 2. Concrete Pavers
 3. Decomposed Granite
 4. Planting
 5. Plumbing
 6. Electrical

1.3 SUBMITTALS

- A. Submit Manufacturers' catalogue cuts or shop drawings indicating size, materials, finishes and quantities of items being supplied.
- B. Submit one color sample for each product. Color sample shall be of final material.

1.4 COORDINATION

- A. The Contractor shall coordinate his work with other trades.

PART 2 - PRODUCTS

2.1 CAST-IN-PLACE Concrete Bench

- A.
1. Color and finish: per plans
 2. Model number: NA
 3. Manufacturer: by Contractor

2.2 DRINKING FOUNTAIN

- A. Per Plan.

2.3 TRASH

- A. Per Plan.

2.4 PLAY EQUIPMENT

- A. Per Plan.



2.5 BOLLARD

- A. Per Plan.

2.6 FOOTINGS AND HARDWARE

- A. Footings and hardware for secured installation.
- B. Submit shop drawings of installed condition of all furnishings items for review.

2.7 MISCELLANEOUS

- A. Anchors and adhesives required for installing and attaching the furnishings.

PART 3 - EXECUTION

3.1 DIMENSIONS

- A. Dimensions shall be certified at the job site to insure proper placement, and fit of the equipment in the allotted areas.

3.2 INSTALLATION

- A. Furnishings shall be installed per Manufacturer's recommendations, unless otherwise noted on Drawings or Specification.
- B. Work shall be set plumb and level, true to line and shall present a neat and finished appearance.
- C. Set each item in its correct place, fastening it, connecting it, or incorporating it into other portions of the work.
- D. Test and operate equipment to assure proper function.

3.3 PROTECTION

- A. Adequately protect all work from damage by subsequent construction operations. Damaged work shall be replaced.

3.4 CLEAN-UP

- A. The Contractor shall at all times keep the premises free from accumulation of waste materials and rubbish caused by his employees.
- B. Upon completion of work, rubbish and excess materials are to be removed from the site, leaving the areas acceptably clean.

END OF SECTION

**SECTION 02900
LANDSCAPE PLANTING**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes materials, soil and installation in over-structure planters, soil preparation, planting, palm planting, seeding, sodding, staking and guying, and cleanup.
 - 1. Planting occurs at street level and on upper building levels.

- B. Related work:
 - 1. Section 02810: Irrigation System
 - 2. Section 02210: Finish Grading
 - 3. Section 02970: Landscape Maintenance

- C. Definitions:
 - 1. Architect: the Architect or the Owner's authorized representative.
 - 2. Soil Test: Required testing performed by Contractor after site is rough graded. A current soil report is also required for import soil prior to transport to the site.
 - 3. Punch List: List of work within the Contract, generated by Architect that needs to be completed, repaired, replaced, or rectified by Contractor.
 - 4. Pre-maintenance review: Observation by Architect to verify substantial completion of the Work. The Architect will generate a Punch List during this review. Maintenance Period will commence when Contractor has completed items on this Punch List and Architect has verified that the Punch List is complete.
 - 5. Maintenance Period: See Specification section 02970.
 - 6. Final Acceptance: Observation review by Architect at end of the specified Maintenance Period to verify completion and acceptance of the Work.

1.2 QUALITY ASSURANCE

- A. Standards:
 - 1. Provide plants and planting materials that meet or exceed specifications of Federal, State, and County laws requiring inspection for plant disease or insect control.
 - 2. Provide quality and size conforming to current edition of "Horticultural Standards" for number one nursery stock as adopted by the American Association of Nurserymen.
 - 3. Provide plants that are true to name. Tag one of each bundle or lot with the name and size of plants in accordance with the standards of practice of the American Association of Nurserymen.
 - 4. Botanical names shall take precedence over common names.

- B. Workmanship: Perform work in accordance with the best standards of practice for landscape work and under the continual supervision of a competent foreman capable of interpreting the Drawings and Specifications.

- C. Quantities and Types: Plant materials shall be furnished in the quantities and/or spacings as shown or noted for each location, and shall be of the species, kinds, sizes, etc., as symbolized and/or described in the Plant List, and as indicated on the Drawings.

- D. Verification of dimensions and quantities: scaled dimensions are approximate. Before proceeding with work, carefully check and verify dimensions and quantities and immediately

inform the Architect of discrepancies between the Drawings and/or specifications and actual conditions. Do not start work in areas where there are discrepancies until approval for same has been given by the Architect.

- E. Contract Growing: Some plant materials may require contract growing. Contractor shall make arrangements for and pay for all costs associated with growing to meet project schedule as coordinated with the General contractor. Failure to provide specified materials may extend final acceptance.

1.3 SUBMITTALS

- A. Submit documentation to Architect 60 days before start of planting that plant material is available. Include:
1. A list of plants stating quantity, size, and supplier.
 - a. Requests for substitutions due to unavailability must be made in writing.
 - b. Substitutions may not be made without approval of the Architect.
 - c. Contractor shall notify Architect 24 hours in advance of delivery of plant materials, and shall submit an itemized list of plants in each delivery.
 2. Photographs of trees 24" box and larger.
 - a. Label each photo with plant name, plant height, spread and trunk caliper.
 - b. Label each photo with nursery name, nursery contact and phone number.
 - c. Photograph shall include a person in picture for scale purposes.
- B. Soil Test: Contractor shall have import soil and the soil of the site tested for fertility, agricultural suitability, and appraisal by Soil and Plant Laboratory Inc. (714) 282-8777, or Wallace Labs (310) 615-0116.
1. Submit a copy of the Planting Plan and Plant Legend to the laboratory with the samples. Laboratory shall be notified about the native plant and hydroseed species on the plan and the recommended use of 'fertilizer packets'.
 2. Soil report shall include:
 - a. pH measurement.
 - b. Nutrients and elements:
 - 1) Measurement (low, medium, high) of: Boron, calcium, copper, iron, magnesium, manganese, molybdenum, phosphorus, potassium, sodium, sulfur, and zinc.
 - 2) Analyze saturation extract for: calcium, magnesium, sodium, boron, chloride, phosphorus, nitrate and sulfate.
 - 3) Trace metals: Aluminum, arsenic, cadmium, chromium, cobalt, lead, lithium, nickel, selenium, silver, strontium, tin and vanadium.
 - 4) The presence of calcium carbonate and/or magnesium carbonate.
 - c. Soil Texture (gravel, sand, silt and clay). Determine organic matter content by the measurement of organic carbon. The quality of the organic matter shall be determined by measuring organic carbon and total nitrogen.
 - 1) Methods of Soil Analysis, Part 1, Physical and Mineralogical Methods, Soil Science Society of America, Inc., 1986, chapter 36, pgs 901-926 and Methods of Soil Analysis, Part 3 Chemical Methods, Soil Science Society of America, Inc, 1996, chapter 34, pgs 965-977 & pgs 1001-2 and chapter 37, pg 1088
 - d. Interpretation and recommendations for correction of nutritional deficiencies/excesses and potential toxicities.



3. Soil shall be tested from a minimum of four (4) locations per acre of planted area. Contractor shall record locations where samples were taken.
 4. A copy of the soil test results shall be submitted to the Owner and Architect before work begins.
 5. Contractor shall pay cost of soil tests and recommendations.
- C. Cut sheets of materials to be used: tree stakes, tree guys, root barriers, amendments, mycorrhizal fungi, etc.
- D. Legible copies of delivery slips for soil amendments, including mycorrhizal fungi.
- E. The Contractor shall submit samples or specifications of items being used upon the request of the Architect, and as required by this Part 2 of this Specification.

1.4 OBSERVATION SCHEDULE

- A. Contractor shall be responsible for notifying the Architect, in advance, for the following observations, according to the time indicated:
1. Pre-construction conference – seven (7) days
 2. Tree tagging at nursery (trees 24" box size and larger) – seven (7) days
 3. Final grade, soil preparation and planting area layout review - 72 hours
 4. Plant materials review - 72 hours
 5. Plant layout review - 72 hours
 6. Planting operations - 72 hours
 7. Completed planting (Pre-maintenance) walk through – seven (7) days
- B. Contractor shall be responsible for scheduling site Observation visits with Architect as work progresses. Failure to schedule required Observations shall not relieve Contractor of responsibility for obtaining approvals. Contractor shall redo, at no cost to the Owner, work that does not satisfy the Owner.
- C. Observations may be waived or combined at the discretion of the Architect.
- D. When someone other than the Architect conducts Observations, the Contractor shall show evidence in writing of when and by whom these observations were made.
- E. No site visits shall commence without adequate preparation or items noted in previous Observation Reports, either completed or remedied, unless the Owner has waived such compliance. Failure to adequately prepare or accomplish previous punch list items shall make the Contractor responsible for reimbursing the Architect for the site visit at his current billing rates per hour plus transportation costs. No further inspections will be scheduled until this charge has been paid and received.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver fertilizer or soil amendments to site in original unopened containers bearing manufacturer's guaranteed chemical analysis, name, trademark, and conformance to state law. Protect material from damage or breakage. Immediately remove empty containers from site.



- B. Deliver plants with legible identification labels. Store plant material in shade and protect from weather or injury. Maintain in a healthy, vigorous condition. Architect may at time reject plant material not maintained in this condition.
- C. Handling: Do not drop plants or pick up container plants by their stems or trunks.

1.6 SAMPLES AND TESTS:

- A. Contractor shall submit soil samples for testing, per this Specification.
- B. Architect reserves the right to take and analyze samples of materials for conformity to specifications at any time. Contractor shall furnish samples upon request by Architect.
- C. Rejected materials shall be immediately removed from the site at the Contractor's expense.
- D. Contractor shall pay cost of testing or replacement of materials not meeting specifications.

1.7 WARRANTY AND REPLACEMENT

- A. Contractor shall fully warrant and agree to replace poor, inadequate, or defective materials and workmanship for one year from date of acceptance of completed planting work.
- B. Palm trees: Guarantee newly planted palm trees for a period of two years following planting and acceptance by Owner.
- C. Replacement: Materials found to be dead, missing, or in poor condition during the establishment period shall be replaced immediately. The Architect shall be the sole judge as to the condition of material. Material to be replaced during the warranty period shall be replaced by the Contractor within fifteen days of written notification by Owner.

PART 2 - PRODUCTS

2.1 SOIL

- A. Site Soil:
 - 1. Site soil used to form landscape planting areas or backfill planters shall be clean, fertile, loamy soil, free of stones, sticks, stumps, or other deleterious matter one inch in diameter or larger. It shall also be free from wire, plaster, construction debris, or similar objects that would be a hindrance to planting or maintenance.
 - 2. The Architect shall approve suitability of soil of the site after reviewing results of the soil test.
- B. Import Top Soil: Clean, fertile, sandy loam soil, free of stones or other deleterious matter one inch in diameter or larger. It shall also be free of pockets of coarse sand, noxious weeds, sticks, lumber, brush and other litter. It shall not be infested with nematodes or other undesirable disease-causing organisms such as insects and plant pathogens. Import top soil must conform to the following:

- 1. Particle size

Class	Particle Size Range	Maximum %	Minimum %
Coarse sand	0.5 - 2.0mm	15	0



Silt plus clay	<0.05mm	50	15
<u>Other classes:</u>			
Gravel	2-13mm	15	0
Rock	1/2 - 1"	2% by volume with none > 1"	

2. Chemistry
 - a. Salinity: Saturation Extract Conductivity (ECe) - less than 3.0 sD/m @ 25° C
 - b. Sodium: Sodium Absorption Ratio (SAR) - less than 6.0
 - c. Boron: Saturation Extract Concentration - Less than 1.0 ppm
 - d. Reaction: pH of Saturated Paste - 5.5-7.8 without high lime content
3. Soil shall contain sufficient quantities of available nitrogen, phosphorus, potassium, calcium and magnesium to support normal plant growth. In the event of nutrient inadequacies, provisions shall be made to add required material prior to planting.
4. In order to insure conformance, samples of the import soil shall be submitted to an approved laboratory for analysis prior to and following backfilling.
5. Obtain imported topsoil from approved local sources.

C. Backfill for at grade trees and shrubs shall be per Soils Report.

2.2 SOIL AMENDMENTS

- A. Contractor shall provide amendments recommended by Soils Report at no additional cost to Owner, including recommendations for the quality of organic amendment.
- B. Mycorrhizal fungi shall be added in all planting areas, regardless of Soils Report. Mycorrhizal inoculum consists of a combination of :
 1. Inoculum shall contain a blend of eight top types of Endospores: Glomus aggregatum, G. clarum, G. deserticola, G. intraradices, G. monosporus, G. mosseae, Gigaspora margarita, and Paraglomus brasilianum, and seven top types of Ecto fungi spores: Lacarria laccata, Pisolithus tinctorius, Rhizopogon amylopogon, R. fulvigleba, R. rubescens, R. villosuli, and Scleroderma spp. The guaranteed Endo spore count shall be a minimum 50 spores/cc, and the Ecto spore count shall be a minimum 50,000 spores/cc
 2. Manufacturers:
 - a. BioOrganics Mycorrhizae Inoculants, (888) 332-7676
 - b. Mycorrhizal Applications, Inc, (866) 476-7800
 - c. Or equal.

C

.Fertilizer packet (10 grams weight) shall contain a blend of 16% total nitrogen, 6% available phosphoric acid, and 8% soluble potash plus minor nutrients. The nitrogen, phosphorous, and potassium shall be coated with a polyurethane coating to provide 15.69% coated slow release nitrogen, 5.09% coated slow release available phosphate, and 6.8% slowly available soluble potash. Bio-pacs® meeting these specifications are available from Reforestation Technologies Inc. or equal.

2.3 PLANT TABLETS

- A. 7 gram planting tablet designed for 12 month slow release. 12-8-8 NPK, 20% humus, 4% humic acids, 3.5% sulfur, 2% iron, micronutrients.

2.4 PLANT MATERIAL:

- A. Plants shall be in conformance with the California State Department of Agriculture's regulation for nursery inspections, rules, and ratings. Plants shall be healthy, vigorous, and free of insect infestations, plant diseases, sunscalds, frostburns, abrasions, or other disfigurement. Plants shall be grown in climatic conditions similar to that of the planting site, and well hardened off. Plants shall have vigorous fibrous root systems which are not rootbound or potbound. The Architect is the sole judge as to acceptability of plant material.
- B. The size of the plants will correspond with that normally expected for species and variety of commercially available nursery stock or as specified on Drawings.
- C. The Architect shall approve plant material prior to planting. Plants shall be subject to review and approval of Architect at place of growth or upon delivery for conformity to specifications, and for injury, insect infestation, and trees and shrubs for improper pruning. Such approval shall not impair the right of review and rejection during progress of the work. Architect reserves the right to refuse review if, in his/her judgment, a sufficient quantity of plants is not available for review.
- D. Plants not conforming to the requirements herein specified shall be considered defective, and such plants, whether in place or not, shall be marked as rejected and immediately removed from the site and replaced with new plants at the Contractor's expense.
- E. Plant material shall be true to botanical and common name and variety as specified in "Sunset Western Garden Book."
- F. Substitute plant material will not be permitted unless specifically approved in writing by the Architect.

2.5 SEED MIXES:

- A. See Drawings for seed mixes.

2.6 GUYING AND STAKING MATERIALS:

- A. Wood tree stakes: Lodgepole pine, fully treated with CuNap, ACQ or other non-arsenic wood preservative. Do not use split stakes.
 - 1. 24" box trees and smaller: 2" (nom.) diameter by 10' long.
 - 2. 36" box trees: 3" (nom.) diameter by 12' long.
- B. Tree Ties:
 - 1. Flexible vinyl tree ties meeting ASTM-D-412 standards for tensile and elongation strength. Material shall be black.
 - 2. Each tie shall be a single piece, not multiple ties joined together.
 - 3. Manufacturers: VIT Cinch Tie, VIT Cinch Belt (larger trees), Villa Root Barrier E-Z Band, or equal.
- C. Guying Hardware:
 - 1. Wire: Pliable 1/8" galvanized steel cable.
 - 2. Hose: 1/2" new black rubber hose.
 - 3. Turnbuckles: galvanized or dip-painted, size as required.
 - 4. Cable clamps: galvanized, size as required.



- 5. Safety Sleeve: 1/2" white PVC full length of wire.
- 6. Steel Guy Anchor: Duckbill Anchor by Foresight Products (800) 325-5360; Platypus Tree Anchoring Systems (866) 752-8478, or equal. Size as needed.

2.7 WATER:

- A. Furnished by Owner.
- B. Transport by Contractor as required.

2.8 MULCH:

- A. Rock : per Plans.

2.9 DRAINAGE MATERIAL - 3/8" CRUSHED ROCK:

- 95% -100% passing through a 3/8" screen.
- 0-5% passing through No. 8 mesh.
- 80-100# per cubic yard.

2.10 EROSION CONTROL FABRICS

- A. Jute mesh.

1.	Specification	Test Method	Typical Values
a.	Yarn Fiber		Woven jute, undyed and unbleached
b.	Yarn Count, Warp		78 per width, minimum
c.	Yarn Count, Weft		42 per linear yard, minimum
d.	Color		Natural(Brown, Earth Tone)
e.	Fabric Width (in)		48
f.	Fabric Weight (lb/yd2)		92
g.	Strands/ft, Warp		19.5
h.	Strands/ft, Weft		14.0
i.	Mass/Unit Area (oz/yd2) ..		14.7
j.	Wide Width Tensile, Dry (lb/ft)		
	Warp x Fill	ASTM D 4595 ..	300 x 175
k.	Wide Width Tensile, Wet (lb/ft)		
	Warp x Fill	ASTM D 4595 ..	125 x 65
l.	Elongation at Break (%) ..		10 x 10
m.	Open Area (%)		60 - 65
n.	Durability(yr)		1 - 2
o.	Water Velocity (ft/sec) ..		8
p.	Unit Shear Test (lb/ft2) ..		0.45
q.	"C" Factor, 1.5:1 slope ..		0.005

2.11 ROOT BARRIER

- A. Polyethylene (0.08 inch thick) or polypropylene (2.032 - 2.16 mm thick), with self-locking joiners, 1/2" raised 90 degree molded root deflecting ribs, ground lock tabs, double top edge, UV inhibitors. Use 24" barrier unless otherwise stated.



2.12 TREE TRUNK PROTECTOR

- A. 9" height with 4" diameter, expandable, ventilated, 1.52 mm thick UV inhibited polyethylene, gray-brown color. Arbor Guard by Deep Root Corp (800) 458-7668. TP-128 by NDS (800) 726-1994, or equal.

PART 3 - EXECUTION

3.1 INSPECTION AND PREPARATION:

- A. Site acceptance:
 - 1. The Contractor shall be responsible for coordinating his work with the General Contractor and other Sub-Contractors so no damage occurs to plantings after installation.
 - 2. The Contractor shall be responsible for verifying grades and site conditions before beginning work. No change in Contract price will be owed for actual or claimed discrepancy between existing grade and those shown on the plan after Contractor has accepted existing grades and moved on the site.
- B. Scheduling: Perform planting only when weather and soil conditions are suitable, as approved by Architect.
- C. The irrigation system shall be operational and approved prior to planting.
- D. Utilities: Prior to excavation for planting or installation of stakes or guys, Contractor shall locate utility lines and cables, so that proper precautions will be taken not to damage them. In the event of a conflict between utility lines and plant locations, promptly notify the Architect, who shall arrange for the relocation of one or the other. Failure to follow this procedure shall make the Contractor responsible for repairing damages at his own expense.
- E. Waterproofing: Verify that waterproofing is complete and water-tight in over-structure planters.

3.2 SOIL PREPARATION:

- A. Planting Areas:
 - 1. Uniformly spread amendments and thoroughly cultivate by means of mechanical tiller per Soils Report.
 - 2. Use nutrients recommended in the Soil Report.
 - 3. Add the appropriate Mycorrhizal inoculum and incorporate at manufacturer's recommended rate.
 - 4. Perform soil preparation after irrigation is installed and tested, and prior to planting.
- B. Final Grades and Planting Area Layout:
 - 1. At time of planting, the top two (2) inches of areas to be planted or seeded shall be free of stones, sticks, stumps, or other deleterious matter one inch in diameter or larger. It shall also be free from wire, plaster, construction debris, or similar objects that would be a hindrance to planting or maintenance.
 - 2. Contractor shall be responsible for shaping planting areas as indicated on Plans or as directed by Architect.
 - 3. Minor modifications to grade may be required to establish the final grade. Remove soil generated by excavations to an approved off-site location unless said soil can be utilized to obtain desired grade.
 - 4. Finish grading shall insure proper drainage of the site as determined by the Architect.



5. Areas shall be graded so that the final grades will be 1-1/2" below adjacent paved areas, sidewalks, valve boxes, headers, cleanouts, drains, manholes, etc. or as indicated on Plans.
 6. Surface drainage shall be away from building foundations.
 7. Eliminate erosion scars prior to commencing maintenance period. Depressions due to settling shall be eliminated before and after planting.
 8. Slopes of two to one (2:1) or steeper shall be protected with erosion control fabric. Contractor shall request clarification from Architect for fabric and methods.
- C. Compacted Soil / Percolation Testing: Soil may be heavily compacted which can hinder root development, drainage and aeration.
1. Severely compacted areas shall be ripped or tilled to a depth of at least 9" prior to planting.
 2. Percolation tests of water through the soil shall be performed where trees 24" box size and larger are proposed. If trees are to be planted over a large area, several percolation tests will be required.
 - a. Excavate two planting pits 24" deep by 2 times rootball diameter. Install sand filled drainage sump as specified in 3.3.D.4, below, in one of the pits.
 - b. Fill the pits with water and allow to drain completely.
 - c. Fill the pits with water a second time.
 - d. Results:
 - 1) If the pit with no sump drains completely within 24 hours, no drain sump is necessary for trees planted within the vicinity of the test pit.
 - 2) If the pit with no sump does not drain completely within 24 hours, but the pit with the sump does, sumps are required for trees planted in the vicinity of the test pit.
 - 3) If the pit with the sump does not drain completely within 24 hours, advise the Owner prior to planting.
- D. Pre-Plant weed Control:
1. "Grow & Kill": If weeds exist on site at the beginning of work, spray with a non-selective systemic contact herbicide, recommended by an approved licensed landscape Pest Control Advisor and applied by a licensed Pest Control Operator. Leave sprayed plants intact to allow systemic kill as directed by Advisor. After recommended kill period, water thoroughly to encourage new weed growth, and re-apply systemic herbicide.
 2. Treat planting areas, except for those to be seeded, with pre-emergent herbicide, recommended by an approved licensed landscape Pest Control Advisor and applied by a licensed Pest Control Operator
 3. Maintain site weed free until final acceptance by Owner by utilizing mechanical, manual, or chemical treatment.
- E. Slope Stabilization
1. Slopes greater than 3:1 are to be stabilized with jute mesh.
 2. Prepare soil as noted above.
 3. Unroll jute from top of slope to bottom. Secure at top of slope by toeing jute in 6" deep. Reinforce with a row of at least five staples, spacing each about a foot apart, and covering with soil.
 4. Place staples 18" to 24" apart throughout to secure matting to ground. Staples must be driven flush with soil surface.
 5. Overlap edges of rolls 6", minimum. Securely staple the two layers to the ground.
 6. Install jute mesh loosely - do not stretch.
 7. Check slots may be needed on steep slopes to prevent subsurface erosion.



- a. Dig 6" deep trench perpendicular to water flow.
 - b. Drop two or three folds of fabric in the slot.
 - c. Staple fabric securely in bottom of trench, and continue rolling down hill.
8. Use approximately 200 staples per 100 square yards of fabric.

3.3 PLANTING

A. Planting Layout: Plant layout is to be approved by Architect before planting begins. Layout of trees and major plantings shall be approved first. One tree with each type of specified staking shall be approved prior to planting of trees. Bring conflicts regarding the exact locations of plant pits to the attention of Owner's representative and Architect. If underground utility lines or other unknowns are encountered in excavation for planting, alternate locations for planting may be selected by the Architect. It is the Contractor's responsibility to verify with the Owner's superintendent and governing agencies the location and depth of underground utilities.

B. Planting of Trees and Shrubs (at grade):

- 1. Do not plant rootbound, dried out, undersized, or damaged plants.
- 2. Install trees, shrubs, and groundcovers before planting seed or sod.
- 3. Excavated holes shall have vertical sides with roughened surfaces and shall be twice the diameter and the depth of the root b.
- 4. Drainage: Drainage sumps are to be provided in each tree pit. Drain sumps (12-inch diameter by 6 feet deep) may be augured. Sump is to be filled with washed coarse sand. Planting may proceed after sump installation.
- 5. Fill excavations with water and allow to percolate out, before positioning trees and shrubs.
- 6. Install root control barriers where indicated on Plans and where site conditions (trees within three feet of pavement) dictate. Install per manufacturer's instructions.
- 7. Center plant in pit or trench. Remove boxes and cans without damage to rootball. Add the appropriate Mycorrhizal inoculum next to rootball at manufacturer's recommended rate. Set plant plumb and hold rigidly in position until soil has been dampened firmly around b or roots. An earthen basin shall be constructed around each plant. Each basin shall be of a depth sufficient to hold at least two inches (2") of water. Remove basin in turf areas after initial watering. Plants that settle deeper than the surrounding grade shall be raised to surrounding grade level.
- 8. Plant container backfill (native material) (for bidding purposes)
 - a. 100% by volume clean excavated topsoil/import soil.
 - b. Fertilizer packet: one per plant pit.

C. Planting Tablets: Place the following numbers of 7-gram planting tablets within the backfill of each plant:

Container size / Number of tablets	
1 gallon.....	3
5 gallon.....	8
15 gallon.....	12
24" box.....	16
36" box.....	24
48" box.....	32

D. Staking and Guying: Staking and Guying of trees shall be completed immediately upon planting. Stakes shall be installed plumb and as indicated in details. Guy locations and



methods shall be reviewed prior to planting of boxed trees. Bring conflicts of locating guys or stakes to the attention of Architect. Remove nursery stakes when site stakes have been installed.

- E. Ground covers: Ground covers or seedlings shall be planted in straight rows and evenly spaced, unless otherwise noted, and at intervals called out in the drawing. Triangular spacing shall be used unless otherwise noted on the drawing. Fill in bare areas with plants at the required spacing. Damage to plants by trampling or other work in this contract shall be repaired immediately.

F. Hydroseeding

1. Mix slurry of mulch and fertilizer to produce a homogeneous slurry mixture in designated proportions. Discharge system shall apply slurry at a continuous and uniform rate. All hydroseed mulch and fertilizer shall be applied as two applications. Mulch color shall vary to visually confirm coverage. Seed shall be applied in an initial application and over sprayed second application with mulch and binder to allow seed to contact soil surface.

a. **Step One**

1. 200 pounds lbs/ac of virgin cellulose wood fiber.
2. 60 lbs (or a minimum of 3,500,000 prapagules)/ac of AM fungi.
3. Specified seed mix for each area.

b. **Step Two**

1. 1,800 pounds lbs/ac of virgin cellulose wood fiber.
2. 160 lbs/ac organic soil stabilizer (Ecology Control or M-Binder or equal).

- c. Once the seed and AM fungi inoculums are added to the mixing tank, application must be made within one hour. If temperature will exceed 90 degrees Fahrenheit (32 degrees Celsius), step two must be applied within three hours of the first step.

2. Immediately after application, irrigate seeded areas thoroughly. Application pattern shall conform to irrigation system so that watering can be accomplished in a timely sequence.
3. Program watering so that repeated watering at short application times can be made to prevent runoff and to prevent erosion.
4. Prior to hydro-seeding, planting shall be done. Abutting ground cover beds shall be neatly trimmed to forms and lines shown on drawing.
5. Hydro seed shall be applied, in lieu of organic mulch, between all plants where bare spoil exists

6. Areas that do not germinate satisfactorily shall be reseeded at 14-day intervals until an overall acceptable stand of vegetation is achieved.
- G. Install Arbor-gard tree trunk protector on trees planted in turf areas. Install per manufacturer's instructions.

3.4 CLEANUP

- A. After planting operations have been completed, remove trash, excess soil, empty plant containers, and rubbish from the property, and dispose of legally.
- B. Cleanup shall be performed at the end of each working day, with a maximum cleanup effort (in a manner satisfactory to the Owner) for each weekend or Holiday.
- C. The Contractor shall sweep the site and shall wash down pavement within the Contract area, leaving the premises in a clean condition.
- D. Walks shall be left in a clean and safe condition.
- E. Scars, ruts, or other marks in the ground caused by this work shall be repaired and the ground left in a smooth condition throughout the site.

END OF SECTION



**SECTION 02970
LANDSCAPE MAINTENANCE**

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. Work Specified in this Section: Furnish all labor, material, equipment, and services required to maintain the landscape in an attractive condition as specified herein for a period of 90 calendar days.
- B. Related Work Specified in Other Sections:
 - 1. Section 02810: Landscape Irrigation.
 - 2. Section 02900: Landscape Planting
- C. Definition: The word Architect as used herein shall refer to the Landscape Architect or the Owner's authorized representative.

1.2 QUALITY ASSURANCE

- A. The Contractor's representatives and employees shall be experienced in maintenance of Native Plants and Habitat. Submit proof of prior experience with 6 projects of similar native plant maintenance.

1.3 90 CALENDAR DAY MAINTENANCE PERIOD

- A. The Contractor shall continuously maintain all areas involved in this Contract during the progress of work. Maintenance period shall not start until all elements of construction, planting, and irrigation for the entire project are in accordance with Plans and specifications.
 - 1. A prime requirement is that all lawn and groundcover areas shall have been planted and that all lawn areas shall show an even, healthy stand of grass seedlings or sod, either of which shall have been mowed twice. Maintenance period will not be shortened when this criteria is met, but may be lengthened if not met.
 - 2. The Contractor's maintenance period will be extended if the provisions required within the Plans and specifications are not fulfilled. Project may not be segmented into maintenance phases.
 - 3. The Contractor shall request a Pre-Maintenance inspection by the Owner and Architect at the completion of the installation process.
 - 4. The Maintenance Period shall begin upon successful completion of the Pre-Maintenance walk-through punch list and acceptance of the landscape installation by the Owner.
 - 5. If such criteria are met to the satisfaction of the Owner, a field notification will be issued to the Contractor to establish the effective beginning date of the maintenance period.
- B. The Maintenance Period continues for 730 calendar days until final acceptance of the work by the Owner. Improper maintenance or poor condition of planting at the termination of the scheduled maintenance period may cause postponement of the final completion date of the Contract.
- C. Any day when the Contractor fails to adequately maintain planting, replace unsuitable plants or do weed control or other work, as determined necessary by the Owner, will not be credited as one of the maintenance period working days.



1.4 GUARANTEE AND REPLACEMENT

- A. Guarantee: All plant material installed under the contract shall be guaranteed for a period of one year. Plants found to be dead or in poor condition due to faulty materials or workmanship, as determined solely by the Owner, shall be replaced by the Contractor at his expense.
1. Replacement: Materials found to be dead, missing, or in poor condition during the Maintenance period shall be replaced immediately.
 2. The Owner shall be the sole judge as to the condition of material.
 3. The Contractor shall replace material rejected during the Guarantee period within fifteen (15) days of written notification by the Owner.

1.5 OBSERVATION VISITS

- A. The Contractor shall request progress visits from the Owner or his authorized representative at least 72 hours in advance of anticipated visits. Normal observation visits are as follows:
1. Immediately prior to the commencement of the work in this section.
 2. Completion of first 90 days of maintenance.
 3. Final acceptance.

1.6 FINAL ACCEPTANCE OF THE PROJECT

- A. Prior to the date of the final observation visit, the Contractor shall acquire from the Architect-approved reproducible Plans and record (from the job record set) all changes made during construction, label these Plans "Record Drawings", and deliver to the Architect for review and approval.
- B. Prior to the date of final inspection, the Contractor shall deliver to the Architect a written "Landscape and Irrigation Guarantee" as required herein.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. All materials used shall either conform to landscape specifications in other sections or shall otherwise be acceptable to the Owner.
- B. The Contractor shall supply to Owner shall be given a monthly record of all herbicides, insecticides, and disease control chemicals used. Failure to provide such a record will continue maintenance period until compliance occurs.

PART 3 - EXECUTION

3.1 MAINTENANCE

- A. Maintenance shall be performed according to the following standards:
1. All areas shall be weeded and cultivated at intervals of not more than ten (10) days.
 2. Watering, mowing, rolling, edging, trimming, fertilization, spraying, and pest and rodent control, as may be required, shall be included in the maintenance period.
 3. Street gutters shall be cleaned as part of the maintenance program.
 4. The Contractor shall be responsible for maintaining adequate protection of the area.
 - a. Damaged areas shall be repaired at the Contractor's expense.
 5. Between the 15th day and the 20th day of the maintenance period, the Contractor shall re-sod all spots or areas within the lawn where normal turf growth is not evident.
- B. The Contractor shall be responsible for reporting to the Owner conditions beyond his control that prevent or have negative impact on the work required herein.

3.2 TREE AND SHRUB CARE

A. Watering

1. Apply enough irrigation water so that moisture penetrates throughout root zone and only as frequently as necessary to maintain healthy growth.
 - a. Do not maintain soils in a constantly wet condition.
 - b. Contractor shall be responsible for familiarizing himself with the particular water requirements for the various plantings and shall be responsible for setting and maintaining the automatic controller to optimum minimum levels.
 - c. Damage to the plantings caused by over-watering or under-watering shall be the responsibility of the Contractor to replace at no cost to Owner.
2. Maintain a water basin around newly planted plants so that water can be applied to moisturize throughout the root zone. At the end of the maintenance period these basins shall be flattened out to match surrounding grades.
3. If hand-watering, use a fan spray nozzle to break the water force.

B. Tree Pruning

1. Nursery grown trees will not normally require pruning for the first year. Prune trees only if directed by Owner, and only for these purposes:
 - a. selection and development of permanent scaffold branches that have a vertical spacing of from 18" to 48" and radial orientation so as not to cross each other,
 - b. elimination of diseased or damaged growth,
 - c. elimination of narrow V-shaped branch forks that lack strength,
 - d. reduction of toppling and wind damage by thinning out crowns,
 - e. maintenance of growth within space limitations,
 - f. maintenance of natural appearance,
 - g. Balancing of crown-to-root ratio.
2. Under no circumstances will stripping of lower branches ("rising up") of young trees be permitted.
 - a. Lower branches shall be retained in a "tipped-back" or pinched condition with as much foliage as possible to promote caliper trunk growth (tapered trunk).
 - b. Lower branches can be cut flush with trunk only after the tree is able to stand erect without staking or other support.
3. Evergreen trees shall be thinned out and shaped when necessary to prevent wind and storm damage. The primary pruning of deciduous trees shall be done during the dormant season. Damaged trees or those that constitute health or safety hazards shall be pruned at any time of the year as required.

C. Shrub Pruning

1. The objectives of shrub pruning are the same as for trees. Shrubs shall not be clipped into balled or boxed forms unless such is required by the design.
2. All pruning cuts shall be made to lateral branches or buds or flush with the trunk. "Stubbing" will not be permitted.

- #### D. Staking and Guying:
- Stakes and guys shall remain in place until final acceptance and are to be continuously inspected and adjusted to prevent girdling of trunks or branches and to prevent rubbing that causes bark wounds and to allow trees to sway freely. Stakes and guys are to be removed when trees become sufficiently well rooted or after one year. When stakes or guys are removed, tree heads may be thinned to reduce wind load.

- #### E. Weed Control:
- Keep all areas, including basins and areas between plants, free of weeds.
1. Use recommended legally approved herbicides only when mechanical removal methods are not feasible.
 2. Avoid frequent soil cultivation next to trees or shrubs that destroys shallow roots.
 3. Use mulches to help prevent weed seed germination.

- F. Pest and Disease Control: Maintain control of insect and rodent infestations. The preferred method of control shall be biological control, or with non-toxic, biodegradable, organic materials. If stronger materials are needed, only materials that are recommended by a licensed Pest Control Advisor and are EPA approved and regulated shall be used. Only registered and licensed Pest Control Operators shall apply insecticide or chemical applications. Notify Owner a minimum of five (5) working days before chemical applications.
- G. Fertilization
 - 1. Fertilize all planting areas at 30-day intervals, with fertilizer and at rate as recommended by Soils Report.
 - a. Avoid applying fertilizer to root balls and bases of main stems
 - b. Spread fertilizer evenly around plants to drip line.
 - c. Distribute fertilizer evenly over turf or groundcover areas to avoid patchy coloration.
- H. Replacement of Plants: Replace dead, dying, and missing plants with plants of a size, condition, and variety acceptable to Architect or Owner at Contractor's expense.

3.3 GROUND COVER CARE

- A. Weed Control: Control weeds preferably with mechanical methods, and also with preemergent herbicides and selective systemic herbicides. Hoe weeds as little as possible since this may result in plant damage. Foot traffic in planted areas shall be minimized, and soil compaction shall be loosened immediately.
- B. Watering: Water enough so that moisture penetrates throughout root zone and only as frequently as necessary to maintain healthy growth.
 - 1. Do not maintain soils in a constantly wet condition.
 - 2. Contractor shall familiarize himself with the particular water requirements for the planting and shall be responsible for setting and maintaining the automatic controller to optimum minimum levels.
 - 3. Damage to the planting caused by over-watering or under-watering shall be the responsibility of the Contractor to replace.
- C. Trash: Remove trash weekly. Remove debris, clippings or branches produced by maintenance activities within 8 hours.
- D. Edging and Trimming: Edge ground cover to keep in bounds and trim top growth as necessary to achieve an overall even appearance.
- E. Replacement: Replace dead and missing plants at Contractor's expense.

3.4 Lawn and Turf Care

- A. Mowing and Edging:
 - 1. Mowing of turf will commence when the grass has reached a recommended height for the specified species. Mowing will be at least twice a week after the first cut. Turf must be well-established and free of bare spots and weeds to the satisfaction of the Architect prior to final acceptance.
 - 2. Edges shall be trimmed at least weekly or as needed for neat appearance.
 - 3. Grass clippings if visible in piles regardless of size shall be removed from the premises.
- B. Watering: Lawns shall be watered at such frequency as weather conditions require to replenish soil moisture below root zone and maintain healthy growth.
- C. Fertilizing:
 - 1. Fertilize all on-grade lawn areas as follows or as recommended by soils report:

- a. At the end of the first 30 calendar days and at 30 to 90 calendar day intervals thereafter - 5 lbs. per 1,000 square feet of maintenance fertilizer.
 - b. After application, irrigate thoroughly.
- D. Weed Control: Remove broad leaf weeds manually or control with selective herbicides. Turf areas shall be kept weed-free.
- E. Renovating:
- 1. If required, remove thatch by verticutting, preferably in the fall but otherwise in the spring. At this time, fertilize with maintenance fertilizer and over-seed if needed.
 - 2. Aerify compacted areas to improve water penetration whenever needed.

3.5 IRRIGATION SYSTEM

- A. System Inspection: Contractor shall continuously check all systems for proper operation. Lateral lines shall be flushed out after removing the last sprinkler head or two at each of the lateral. All heads are to be continuously adjusted as necessary for proper coverage and to eliminate over-spray on buildings or paving. Contractors regular maintenance personnel shall test, observe, and adjust each sprinkler system no less than once per month.
- B. Controllers: Set and program automatic controllers for seasonal water requirements and minimum optimum water use. Give Owner's representative a key to controllers and instructions on how to turn off system in case of emergency.
- C. Repairs: Repair all damage to irrigation system at Contractor's expense. Repairs shall be made within one watering period.

END OF SECTION

**SECTION 05700
ORNAMENTAL IRON WORK**

PART 1 - GENERAL

1.01 GENERAL CONDITIONS

The requirements of the "General Provisions of the Contract" and of Division 1, "General Requirements", shall apply to all work of this Section with the same force and effect as though repeated in full herein.

1.02 SCOPE

The contractor shall provide all work necessary to furnish install complete on the drawings and/or specified herein.

1.03 WORK INCLUDED

Metal work for fencing and trellis. Provide cable per plans.

1.04 SUBMITTALS

Complete shop drawings shall be submitted for approval in advance of fabrication of fencing, trellis, and location of all items on field measured site plans.

- A. Shop drawings shall show dimensions, sizes, thickness gauges, finishes, joining, attachments, and relationship to adjacent work.
- B. Where welded connections, or other items are required receive other work, shop drawings shall show exact locations required.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Steel tubing shall be hot or cold rolled electric welded tubing.
- B. Plates shall be hot rolled carbon steel plates.
- C. Filler material for welding shall be ASTM A233, E60XX, or E70xx as required for manual shielded metal-arc welding.
- D. All parts shall be hot dipped galvanized.
- E. Cable and fittings.

2.02 FABRICATION

For manual welding, low hydrogen type E7015 or E7016 electrodes conforming to ASTM A233 shall be used.

- A. Steel surfaces to be embedded in or bonded to concrete shall be primed only.
- B. Provide butt welds and grind smooth on all items requiring a finished appearance.

- C. Accurately cope or miter intersecting members.

PART 3 - EXECUTION

3.01 VERIFICATION OF SURFACES

- A. Contractor is responsible for inspection of all surfaces receive miscellaneous metal work.
- B. All defects shall be reported which would interfere with proper installation of this work.
- C. Failure to report such defects would imply acceptance of surfaces and will obligate the Contractor to pay for all repair and corrections needed to properly perform his and related work.

3.02 COORDINATION WITH OTHER WORK

- A. Examine drawings and specifications, and include all miscellaneous metal which is not distinctly specified in other sections.
- B. Provide all connections, anchors, bolts, welding, punching, drilling, tapping or other connecting required to fit miscellaneous metal with other work.

3.03 WORKMANSHIP AND INSTALLATION

- A. Miscellaneous metal to be installed shall be free from defects which would impair strength, durability, and appearance.
- B. Workmen shall be competent and skilled in their respective responsibilities.
- C. Erection shall be plumb, straight, true and accurately fitted.
- D. Work shall be adequately braced, reinforced, and anchored in place.
- E. Where operations such as welding are required, workers shall be properly certified and licensed.
- F. All field welds shall be ground smooth.
- G. All connections shall be concealed in the finished work where possible.

3.04 REPAIR OF DEFECTS

- A. All defective or damaged work shall be replaced and/or repaired as per instructions of the Architect at no cost to the Owner.

3.05 CLEANUP

- A. Upon completion of the work of this Section, and as many times as necessary, remove surplus and waste material, debris, equipment and implements from site and the work in a clean, neat acceptable condition.

END OF SECTION



**SECTION 10431
ENVIRONMENTAL GRAPHICS**

PART 1 - GENERAL

1.1. SUMMARY

- A. Related Documents: Provisions established within the Criteria Documents, consisting of specifications, design criteria drawings and sign location plans, are collectively related to this Section.
- B. Section Includes: Requirements for designing, programming, fabricating and installing project signage. Project sign types are:
1. 1 - Entry Identity
 2. 2 - Information / Rules Sign
 3. 3 - Educational Amenity Sign - Primary
 4. 4 - Educational Amenity Sign - Secondary
- C. Sign Contractor's Responsibilities:
1. Prepare final design drawings and construction documents.
 2. Prepare message schedule and final sign location plans.
 3. Provide all services, labor, materials, and product required to fabricate and install project signage and graphic items detailed, noted and specified in the Contract Documents.
 4. Obtain and pay for required permits and taxes.
 5. Provide engineering design as required for approvals and permits.
 6. Provide graphic art services for production of graphic panels, and coordinate necessary reviews and approvals prior to fabrication.
 7. Provide typesetting, copy layouts and all other finished artwork unless otherwise specified.
 8. Provide engineering services as required to develop complete engineering drawings for project signage. Drawings shall be reviewed, stamped and signed by a California-registered civil engineer.
 9. Provide complete shop drawings, drawn to scale, of all signing elements.
 10. Visit site to inspect existing conditions and verify dimensions that are related to fabrication and installation of project signage.
- D. Order of Precedence:

1. Written dimensions on the drawings shall have precedence over scaled dimensions.
2. Specifications shall take precedence in quality over information noted on the drawings.

1.2. QUALITY ASSURANCE

- A. Suppliers: Obtain all products from approved suppliers as identified in Part 2 of this Section.
- B. Installer: Installation shall be performed by installer specialized and experienced in work similar to that required for this project.
- C. Subcontractors: Subject to same submittal, work experience and supervision requirements as the Sign Contractor.
- D. Materials: Materials used in the execution of this work shall be new and of the highest quality available to meet the specific requirements noted in Part 2 of this Section.

1.3. SUBMITTALS

- A. Sign Contractor Drawings:
 1. Prepare final contract documents including design drawings and sign location plans. Refer to master project specification for submittals.
 2. Shop Drawings: Provide complete shop drawings, drawn to scale, detailing interior construction, method of service, access and full-size details affecting exterior appearance. Submit one complete set in reproducible form to Owner's Representative for review and approval prior to fabrication.
 3. Engineering Drawings: Provide complete structural design drawings, drawn to scale, showing engineering details and calculations for sign structures, concrete footings, bases, rebar and building attachments as required for compliance with local codes. Submit one complete set in reproducible form to Owner's Representative for review and approval prior to fabrication.
 4. Lettering Patterns: Submit two full-size lettering patterns of sign messages, symbols or other graphic elements related to sign fabrication for approval by Owner's Representative.
 5. Digital Printing: Submit two prints for approval by the Owner's Representative.
- B. Technical Specifications: Submit technical specifications of paint, coatings and other finish materials. Include actual samples of these finishes. Submit two copies for approval by Owner's Representative.
- C. Material Data:
 1. Submit material cost data for all materials required to construct the work in place. The material cost shall reflect the actual cost of material without mark-up.
 2. Provide manufacturer's information/data sheet or a letter from the manufacturer indicating the location of manufacture, amount of recycled content (post



consumer and industrial percentage in the product, and the location of raw material harvest if within 500 miles of the project site.

3. Submit manufacturer's descriptive technical data and material safety data sheet for all adhesives and sealants indicating the volatile organic compound level in grams/liter.

D. Samples:

1. Paint Color Samples: Submit samples of paint for review of color, sheen and texture, on 4"x 6" aluminum sheets to simulate actual finish. Sign Contractor shall resubmit each sample as requested until required color, sheen and texture are achieved. Submit two copies each for review by Owner's Representative.
2. Hardware Samples: Submit samples of hardware such as fasteners that will be exposed to view. Submit two copies each for review by Owner's Representative.
3. Concrete Finish Samples: Submit sample of concrete finish for pre-cast or cast-in place exterior signs and sign bases. Submit two copies to Owner's Representative for review.

E. Prototypes: Submit complete, finished prototypes to Owner's Representative for review as required. Subsequent fabrication of contract work shall conform with the accepted prototypes, which may be used on the job. Submit one sample each of the following:

1. Sign Type 1 – Entry Identity: One full-size sample.
 - a. Prototype review of oversize signs may be conducted at Sign Contractor's shop and/or job site if required. Prototypes may be used on job, if accepted.
2. Sign Type 2 – Information / Rules Sign: One sign panel with copy application.
3. Sign Type 4 – Educational Amenity Sign – Secondary: One full-size sample. May be conducted at Sign Contractor's shop and/or job site if required. Prototypes may be used on job, if accepted.

1.4. DELIVERY, STORAGE AND HANDLING

- A. Coordinate delivery, installation and/or storage of signs to meet schedule requirements as instructed by Owner's Representative.
- B. Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- C. Store products in location that is protected from weather, temperature, and other harmful conditions as recommended by supplier.
- D. In the event of phased installation, store products in a lockable location as agreed upon with Owner's Representative.
- E. Handle products in accordance with manufacturer's instructions.



1.5. RIGHTS AND GUARANTEE

- A. Design Rights: Sign Contractor is hereby granted limited right to the designs as shown and specified herein for the sole purpose of completing contractual obligations to fabricate and install project signage. Sign Contractor may not manufacture, reproduce or exhibit these designs, or modify them for any other purpose with prior written consent.
- B. Project Warranty: Sign Contractor shall guarantee his work for a period of one year from the date of acceptance or in accordance with the provisions of Division 1, whichever is greater.
- C. Manufacturer's Warranty: Submit manufacturer's standard warranty document executed by authorized company official.

PART 2 - PRODUCTS

2.1. SIGNAGE SYSTEMS

- A. Acceptable Manufacturers
 - 1. Acrylic Polyurethane: Matthews Paint Company, or approved equal.
 - 2. Adhesives: General Electric, Dow Corning or approved equal.
 - 3. Exterior Digital Color Prints: Fossil Industries, 3M Computer Graphics, Rembrandt, Vomar or approved equal.
 - 4. Porcelain Enameling: Fireform, Enameltec, Winsor or approved equal.
 - 5. Screen-Printing Inks: Warnow's Decal Du-Well Enamel or approval equal.
 - 6. Powder Coat: Andrews Powder Coating or approved equal.
 - 7. Sign Extrusions: SignComp or approved equal.

2.2. SIGN MATERIALS

- A. Adhesives:
 - 1. Silicone adhesive used for installing sign items shall be as manufactured by General Electric, Dow, or approved equal.
 - 2. Black vinyl foam and black contact VHB (Very High Bond) adhesive tape, as manufactured by 3M, shall be used in conjunction with silicone adhesives for installation of wall signs, in thicknesses as required.
 - 3. Structural adhesives shall be Versilok acrylic structural adhesives as manufactured by Hughson Chemicals, or approved equal.
 - 4. Construction Adhesive, PL Premium as manufactured by Chemrex Inc. Contech Brands, Minneapolis, MN.
- B. Aluminum: Provide angles, extrusions, channels, shapes, tubes and panel flat, aluminum plate or sheets of thickness required to prevent oil-canning.
 - 1. Provide alloy 5005-h34 for anodized finishes.



2. Provide alloy 3003-h14, mill finish, for painted finishes.
- C. Structural Steel and Aluminum: Provide structural steel and aluminum shapes, channels and extrusions of wall thickness and alloy temper required to meet or exceed engineering requirements and satisfy applicable codes.
- D. Steel Tubing: Provide material conforming to specifications for electric resistance welded carbon and alloy steel mechanical tubing ASTM A513. Remove scale before finishing. Provide wall thickness to meet structural requirements.
- E. Waterproofing: It shall be the responsibility of the Sign Contractor to engineer and provide secure, waterproof housing for any and all electrical components.
- F. Labels: Provide code-required labels to be located inconspicuously away from primary message faces of the sign. No other labels to be affixed to sign.
- G. Hardware: Provide incidental hardware necessary for the proper functioning of the signs, including:
1. Fasteners: Provide flat head stainless steel, tamperproof (security) fasteners, painted to match adjacent surfaces, wherever exposed fasteners may be required. Exposed fasteners shall be permitted only where specifically stated in the individual sign specifications and drawings. Provide stainless steel fasteners for assembling ferrous to non-ferrous metal.
- H. Porcelain Enamel: Provide pan formed, porcelain enameled sign panels with 1/2" x 1" x 1.5" x 2" flanged returns, unless otherwise noted. Exterior sign surfaces of steel shall match 0.1 mm porcelain enamel finish specified herein under the corresponding part of this Section, unless noted otherwise on drawings.
- I. Powder Coat (Metal): 3-4 mils thick coating applied to all metal surfaces, baked in oven, cooled and then ready for assembly.
- J. 6. of 1/40" (0.635 mm) above the background. 1117B.5.6
- Provide rounded or domed California Braille dots, each distinct and separate. Dots with straight sides and flat tops are not readable for many Braille users.
- K. Paint: Provide two component acrylic polyurethane with low volatile organic compounds and ultraviolet (UV) inhibitors.
1. All interior paint must comply with volatile organic compound and chemical component limits of Green Seal Standard GS-11.
- L. Concrete: Provide formed concrete, cast in place or precast, using 16 ga. galvanized iron metal forms for all concrete work exposed above grade. Exposed surfaces shall be finished free of air pockets, pits, exposed aggregate or other imperfections.
- M. Indoor Sealants: All indoor sealant products used as fillers must comply with the volatile organic compound limits of the BAAQMD Regulation 8, Rule 51.

2.3. FABRICATION METHODS

- A. Exercise highest level of care during fabrication and installation, including:
1. Comply with requirements indicated for materials, thicknesses, finishes, colors, designs, shapes, sizes and details of construction.
 2. Preassemble signs in the shop to the greatest extent possible to minimize field assembly. Disassemble signs only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation, in a location not exposed to view after final assembly.
 3. Conceal fasteners if possible; otherwise, located fasteners to appear inconspicuous.
 4. Form panels to required size and shape as shown on drawings. Comply with requirements for design, dimensions, finish, color and details of construction.
 5. Coordinate dimensions and attachment methods to produce message panels with closely fitted joints. Align edges and surfaces with one another in the relationship indicated.
- B. Aluminum:
1. **Welded Construction:** Provide sign cabinets or structures of welded construction with joints filled and finished smooth, unless otherwise noted on the drawings. Exposed fasteners may not be used, except for access panels, which shall be attached with stainless steel flat head screws painted to match adjacent metal.
 2. **Seamless Construction:** Provide signs cabinets of seamless welded construction with edges break formed, and joints welded, ground and finished smooth. Exposed fasteners may not be used, except for access panels, which shall be attached with stainless steel flat head screws painted to match adjacent metal.
 3. **Structural Reinforcements:** Provide sign enclosures or cabinets reinforced with interior structural metal framing as required.
 4. **Oil-Canning:** Adhere panels to structural framing with industrial adhesive or by providing additional welded structural support as required to prevent oil canning.
 5. **Multi-panel Surfaces:** Run grain in the same direction where aluminum and or stainless steel multi-panel surfaces are used.
 6. **Electrolysis:** Prevent corrosive action due to electrolysis by separating ferrous and non-ferrous metals with neoprene or vinyl spacers, or by using stainless steel fasteners.
- C. Very High Bond (VHB) 3M Tape: Apply VHB tape as specified and recommended by manufacturer for sign fabrication applications.
1. Pretreat all surfaces prior to the application of VHB tape, removing all oil and foreign matter, and lightly sand bonding surfaces prior to tape application.
 2. Prior to removal of the carrier tape, burnish the tape to the first applied surface to activate adhesive properties.



3. Reburnish bonded areas and clamp elements together for time specified by manufacturer.

D. Concrete Footings: Provide concrete mixed and poured in accordance with engineering specifications. Provide 16 gauge, galvanized iron metal forms for exposed concrete that is free of air pockets, pits, exposed aggregate or other imperfections, unless otherwise noted. Exposed tops of concrete footings shall be finished with 6" wide mow-strip surround, sloping away from sign structure toward finished grade.

2.4. FINISHING

A. Painted Finish: Prepare surfaces to be painted in accordance with the manufacturer's specifications and recommendations. Pre-treatment of paint finished surfaces to include:

1. Ensure that all surfaces are free of tooling marks, scratches, dings, dents, bondo, joint fillers or foreign matter.
2. Thoroughly sand surfaces to be paint finished as required, using dual action sander with 320 grit paper prior to application of primer and finish coats.
3. Provide sufficient primer coats to achieve a smooth uniform surface.
4. Spray paint all surfaces as required, following paint manufacturer's recommendations concerning thinning, application and drying time.
5. Provide primer coats and top coats of two component acrylic polyurethane with low volatile organic compounds.
6. Provide finish paint containing ultraviolet UV inhibitors and antioxidants as required for highest degree of color and finish retention.
7. Provide satin gloss finish unless otherwise specified.

B. Powder-Coated Finish: Prepare surfaces to be powder-coated in accordance with manufacturer's specifications and recommendations. Pre-treatment of powder coat finished surfaces shall include:

1. Provide satin gloss finish, free of blemishes, pitting or any foreign matter.
2. Provide acid-etch degreasing bath, followed by a clean water rinse.
3. Provide iron phosphate adhesion bath, followed by clean water rinse.
4. Provide non-chromate acidulated seal bath.
5. Provide drying cycle lasting no less than 10 minutes at 300 to 400 degrees Fahrenheit, or as recommended by manufacturer.
6. Electrostatically apply powdered paint at 75 to 90KV or as recommended by manufacturer.
7. Provide thermal setting cycle timed for twenty minutes at a temperature of 400 degrees Fahrenheit or as recommended by manufacturer.

C. Porcelain Enamel Finish: Provide porcelain panels specifically prepared for enameling, using a metal immersion treatment with all pretreatment processes performed in tanks of sufficient size to accommodate the complete panel. Pretreatment and finish processing shall include:

1. Provide de-oxidizing and askalinechromate solutions.
2. Provide porcelain enameled coverage on face side to a minimum of 0.1 mm in thickness.
3. Provide uniform coverage of porcelain enamel through use of aeromatic spray equipment conforming to current PEI:ALS 105(69).
4. Provide porcelain enameled finish with gloss reading of 50 to 70 units when measured at an angle of 45 degrees with a photovoltmeter.

2.5. COPY APPLICATION

A. General Requirements: Provide Adobe Type I Postscript Font available from Abode Systems for all copy applications except as otherwise noted on drawings. Typestyle shown on drawings is for information only.

1. Provide typestyle available with film or machine cut positives produced by phototypesetter, GSP Sign Maker, or approved equal. Large copy shall be photo-mechanically or digitally enlarged.
2. Ensure that size and placement of copy comply with dimensions for letter height, line spacing and placement as either noted on drawings, in digital files, or final approved lettering patterns.
3. Ensure that baselines of all copy are straight and parallel with top or bottom of sign structure unless otherwise noted.
4. Ensure that edges of letter forms are true and smooth with straight and curved portions representing the specified project typestyle exactly.
5. Ensure that corners of letter forms and numerals are true to form. Rounded letter forms shall extend slightly below the normal baseline per respective typestyle characteristics. All letter forms shall be free of imperfections, ticks and distortion of straight lines and curves.

B. Porcelain Panel Copy: Provide screen printed copy on porcelain panels unless otherwise specified. Screen printed copy shall be fired to create permanent graphics application. Letter forms shall be neat, clean and crisp following the project letterstyle and colors as noted.

C. Wall Graphics: Provide exterior grade latex flat finish background color matched to the colors noted on the drawings. Copy application to be exterior grade enamel satin finish unless otherwise specified. Letter forms shall conform exactly to project typestyle and all edges shall be clean and sharp. Provide full-size spacing pattern for approval by Owner's Representative prior to painting. Frisket mask all painted areas prior to painting.

- D. Anti-graffiti Coating for Sign Faces: Apply 3M Scotchcal Matte Overlamine 3642 GPS anti-graffiti film to all sign faces. Apply after copy has been applied as per manufacturer's instructions.

PART 3 - EXECUTION

3.1. PREPARATION

- A. Site Verification of Conditions: Verify that installation conditions are acceptable for product installation in accordance with manufacturer's instructions. Notify Owner's Representative in writing of conditions detrimental to proper and timely execution of work. Work shall not proceed until unsatisfactory conditions are corrected.
- B. Review documents to identify number of units and locations of project signage.
1. Sign locations shown on location plans are for reference only. Exact locations shall be field verified with Owner's Representative prior to installation.
 2. Exterior sign locations shall be identified by numbered stakes that include sign type item numbers.

3.2. INSTALLATION

- A. Install signs plumb and true, at mounting heights indicated, by method shown, and in accordance with manufacturer's recommendations.
- B. Install signs at heights to conform with ADAAG and applicable local amendments and regulations.
- C. Prepare all surfaces as required and properly align, level and true, all signs flush to mounted surface. For freestanding signs, remove excess visible adhesive, if used.
- D. Permanently install signs using concealed and/or visible vandal proof, fastening methods where noted.
- E. Connect electrical signs to the stubbed power source.
- F. Provide Owner's Representative with all warranty information and manufacturer's paperwork upon completion of installation.

3.3. CLEANING, PROTECTION AND REPAIR

- A. Upon completion of installation, clean and polish sign surfaces in accordance with manufacturer's instructions.
- B. Protect product and finishes from damage until accepted by Owner's Representative. Repair damage of any kind to sign or surrounding surfaces to satisfaction of Owner's Representative or item shall be replaced.
1. Check items for correct placement.
 2. Repair and repaint building surfaces damaged during installation.



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- C. Remove protective coating and identifying stickers, paper, upon completion of the installation.
 - D. All surrounding surfaces impacted by installation shall be restored to original elevation and condition. Sod and topsoil to be preserved carefully and replaced after the backfilling is completed. Sod that is damaged is to be replaced by sod of quality equal to that removed. Where the surface is disturbed in a newly seeded area, the restored surface to be reseeded with the same quantity and formula of seed as that used in the original seedings.
 - E. Sign Contractor shall be responsible for all tools and personal items. Owner shall not assume risk for loss of tools or personal items that are left on the project site.
 - F. Remove crating and debris from project site and leave premises in clean condition. All cartons, packing materials, etc. shall be immediately removed from project site by Sign Contractor providing such materials.

3.4. COMPLETION

- A. Once installation, cleaning, protection and repair measures have been completed, perform a punch walk with Owner's Representative to inspect project. Errors shall be corrected in a timely manner to the satisfaction of the Owner's Representative.

END OF SECTION



ITEM NO. (3) CONSIDER AWARD OF A CONTRACT BETWEEN THE CARSON REDEVELOPMENT AGENCY AND AHBE LANDSCAPE ARCHITECTS FOR THE DESIGN AND CONSTRUCTION OVERSIGHT OF A NEIGHBORHOOD PASSIVE PARK AT 21208 SHEARER AVENUE (PROJECT AREA NO. 4) (ECONOMIC DEVELOPMENT)

RECOMMENDATION for the Redevelopment Agency:

TAKE the following actions:

1. AWARD the consultant contract for the design and construction oversight of a passive park at 21208 Shearer Avenue to AHBE Landscape Architects in the amount of \$140,672.00.
2. AUTHORIZE the Agency Chairman to execute the consultant contract following approval as to form by the Agency Counsel.

ACTION: Item No. 3 was approved on the New Business Consent Calendar on motion of Dear, seconded by Santarina and unanimously carried by the following vote:

Ayes: Chairman Dear, Vice Chairman Santarina, Agency Member Davis-Holmes, Agency Member Gipson, and Agency Member Ruiz-Raber
Noes: None
Abstain: None
Absent: None

