

forth in Public Law 88-352, and all amendments thereto, Executive Order 11246, and all administrative rules and regulations issued pursuant to such acts and order.

16.4.1.1 CONTRACTOR and its Subcontractor agree, for the duration of this Contract, that it will not discriminate, harass, or allow harassment against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, national origin, age, political affiliation, marital status, physical disability (including HIV and AIDS), mental disability, issuance of family care leave, medical condition (cancer), or age. The CONTRACTOR and Subcontractor will take affirmative action to insure that employees are treated during employment or training without regard to their race, color, religion, sex, national origin, age, political affiliation, marital status, physical disability (including HIV and AIDS), mental disability, issuance of family care leave medical condition (cancer), or age. Such action shall include, but not be limited to, the following: employment, upgrading, requests or issuance of family care leave, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The CONTRACTOR agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

16.4.1.2 The CONTRACTOR will in all solicitations or advertisements for employees placed by or on behalf of the CONTRACTOR; state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, age, political affiliation, marital status, or handicap.

16.4.1.3 The CONTRACTOR will send to each labor union or other representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice advising the workers' representative of the CONTRACTOR commitments under this agreement.

16.4.1.4 The CONTRACTOR agrees that it will comply with the provisions of Titles VI and VII of the Civil Rights Act, Revenue Sharing Act Title 31, U.S. Code Section 2716, and California Government Code Section 12990.

16.4.1.5 The CONTRACTOR agrees that it will assist and cooperate with the COUNTY, the State of California and the United States Government in obtaining compliance with the equal opportunity clause, rules, regulations, and relevant orders of the State of California and United States Government issued pursuant to the Acts.

16.4.1.6 In the event of the CONTRACTOR non-compliance with the discrimination clause, the affirmative action plan of this contract, or with any of the said rules, regulations or orders, this Contract may be cancelled, terminated, or suspended in whole or in part by the COUNTY.

16.4.2 Transactions:

16.4.2.1 Transactions of \$10,000 or Under: Contracts and subcontracts not exceeding \$10,000 are exempt from the requirements of this section. No CONTRACTOR or

subcontractor shall procure supplies and/or services in less than usual quantities to avoid applicability of this Equal Opportunity Clause. With respect to contracts and subcontracts for indefinite quantities, this Equal Opportunity Clause shall apply unless it is determined that the amount to be ordered in any one year under such contract reasonably will be expected not to exceed \$10,000.

16.4.2.2 Transactions in Excess of \$10,000, but not more than \$50,000:

CONTRACTOR shall certify that it has in effect an affirmative action plan and agrees to comply with all State and Federal laws and regulations concerning fair employment practices. CONTRACTOR shall maintain a written copy of its affirmative action plan and will furnish a copy to the COUNTY upon request. The COUNTY reserves the right during the life of the contract to require CONTRACTOR to complete an affirmative action compliance report furnished by the COUNTY setting forth definite goals and timetables and indicating progress in meeting and goals.

16.4.2.3 Transactions of \$50,000 or More:

1. If CONTRACTOR has fifty (50) or more employees and a contract of \$50,000 or more, then CONTRACTOR shall develop and submit to the COUNTY within thirty (30) days of award a written affirmative action compliance program including definite goals and timetables with proposed dates of compliance. CONTRACTOR shall apply the same requirement to each subcontractor who has fifty (50) or more employees and a subcontract of \$50,000 or more. Each contractor and subcontractor shall include in its affirmative action compliance program a complete table of its employees' job classifications. This table must include, but need not be limited to, job titles, duties and rates of pay.
2. For the purposes of determining the number of employees under the preceding paragraph, the average of CONTRACTOR's or subcontractor's employees for the twelve (12) month period immediately prior to award, or the total number of employees CONTRACTOR or subcontractor will have on all jobs or sites when performing this contract, whichever is higher, shall be used.

16.4.3 The COUNTY shall have the right to assign an affirmative action representative to monitor the conduct of CONTRACTOR or subcontractors. The affirmative action representative shall have the right to enter the construction or manufacturing site for the purpose of obtaining information from persons performing work on the project, providing such inspection shall not in any way interfere with the progress of the work under the contract.

The Contract Documents may be modified where the specific terms of a particular grant or program are inconsistent or require additional acts.

16.4.4 Special Requirements for Federal and Assisted Construction Contracts: During the performance of this contract, the CONTRACTOR agrees to incorporate in all subcontracts the provisions set forth in Chapter 60-1.4(b) of Title 41 published in Vol. 33 No. 104 of Federal Register dated May 28, 1968.

16.5 HANDICAPPED NON-DISCRIMINATION: This project is subject to Section 504 of the Rehabilitation Act of 1973 as amended, (29 U.S.C. 794), and the Americans with Disabilities Act of 1990, as

amended, and all requirements imposed by the guidelines and interpretations issued thereto. In this regard, the COUNTY and all of its contractors and subcontractors will take all reasonable steps to ensure that handicapped individuals have the maximum opportunity for the same level of aid, benefit or service as any other individual.

- 16.6 FAIR EMPLOYMENT AND HOUSING ACT ADDENDUM:** In the performance of this Contract, the CONTRACTOR will not discriminate against any employee or applicant for employment because of race, sex, color, religion, ancestry, or national origin. The CONTRACTOR will take affirmative action to ensure that applicants are employed, and that employees are treated fairly during employment, without regard to their race, sex, color, religion, ancestry, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, promotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The CONTRACTOR shall post in conspicuous places, available to employees and applicants for employment, notices to be provided by the State or Local agency setting forth the provisions of this Fair Employment and Housing Section.
- 16.7 ACCESS TO RECORDS:** The CONTRACTOR will permit access to his records of employment, employment advertisements, application forms, and other pertinent data and records by the State Fair Employment and Housing Commission, or any other agency of the State of California designated by the awarding authority for the purposes of investigation to ascertain compliance with the Fair Employment and Housing section of this Contract.
- 16.8 REMEDIES FOR WILLFUL VIOLATION:** The State or Local agency may determine a willful violation of the Fair Employment and Housing provision to have occurred upon receipt of a final judgment having that effect from a court in an action to which CONTRACTOR was a party, or upon receipt of a written notice from the Fair Employment and Housing Commission that it has investigated and determined that the CONTRACTOR has violated the Fair Employment and Housing Act and has issued an order or obtained an injunction under Government Code Sections 12900, et seq.

ARTICLE 17 SUBCONTRACTING

- 17.1** The CONTRACTOR may utilize the services of subcontractors on those parts of the work that are specified in CONTRACTOR's bid to be performed by subcontractors. The CONTRACTOR shall be responsible for the coordination of the trades, subcontractors and material suppliers. The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts to bind subcontractors to the CONTRACTOR by the terms of the Contract Documents.

Nothing contained in the Contract Documents shall be construed as creating any contractual relationship between any subcontractor and the COUNTY.

The COUNTY reserves the right to approve all subcontractors. Such approval may be a consideration in the award of the contract. Unless notification to the contrary is given to the CONTRACTOR prior to the signing of the Agreement, the list of subcontractors submitted with the bid will be deemed to be acceptable.

In accordance with the Subletting and Subcontracting Fair Practices Act (commencing with Section 4100 of the Public Contract Code), each Bidder, in its bid, shall set forth: (1) the name

and location of the place of business of each subcontractor who will perform work or labor, or render services to the CONTRACTOR in or about the construction of the work, or improvement, in an amount in excess of one-half of one percent (1/2 of 1%) of the CONTRACTOR 's total bid; and (2) the portion of the work which will be done by each such subcontractor. If the CONTRACTOR fails to specify such subcontracts, it agrees to perform that portion of the work itself. Furthermore, no CONTRACTOR whose bid is accepted shall, without consent of the COUNTY, either: (1) substitute any person or firm as a subcontractor in place of the subcontractor designated in the original bid; or (2) permit any subcontractor to be assigned or transferred, or allow its work to be performed by anyone other than the original subcontractor listed in the bid; or (3) subcontract any portion of the work in excess of one-half of one percent (1/2 of 1%) of the CONTRACTOR 's total bid as to which its original bid did not designate a subcontractor.

- 17.2 RESPONSIBILITY OF CONTRACTOR:** The CONTRACTOR shall be as fully responsible to the COUNTY for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.
- 17.3 DIVIDING WORK:** The divisions or sections of the specifications are not intended to control the CONTRACTOR in dividing the Work among subcontractors or to limit the work performed by any trade.
- 17.4 ASSIGNMENT:** COUNTY has contracted for the services of CONTRACTOR. CONTRACTOR shall not assign the whole or any part of this Contract, or any moneys due or to become due hereunder, without first obtaining the prior written consent of COUNTY.

ARTICLE 18 DISPUTES AND CLAIMS

- 18.1 RESOLUTION OF CONSTRUCTION CLAIMS:** In accordance with Public Contract Code Sections 20104.6 and other applicable law, public works claims of \$375,000 or less that arise between the CONTRACTOR and the COUNTY shall be resolved under the following the statutory procedure unless the County has elected to resolve the dispute pursuant to Public Contract Code Section 10240 et seq.
1. All claims shall be submitted in writing and accompanied by substantiating documentation. Claims must be filed on or before the date of final payment unless other notice requirements are provided in the contract. "Claim" means a separate demand by the claimant for (1) a time extension, (2) payment of money or damages arising from work done by or on behalf of the claimant and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled, or (3) an amount the payment of which is disputed by the COUNTY.
 2. Claims Under \$50,000: The COUNTY shall respond in writing to the claim within forty-five (45) days of receipt of the claim, or, the COUNTY may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses or claims the COUNTY may have. If additional information is needed thereafter, it shall be provided upon mutual agreement of the COUNTY and the claimant. The COUNTY's written response shall be submitted within 15 days after receiving the additional documentation, or within the same period of time taken by the claimant to produce the additional information, whichever is greater.
 3. Claims over \$50,000 but less than or equal to \$375,000: The COUNTY shall respond in writing within sixty (60) days of receipt, or, may request in writing within thirty (30) days of receipt of the claim, any additional documents supporting the claim or relating to defenses or claims the COUNTY may have against the claimant. If additional information is needed thereafter, it shall

be provided pursuant to mutual agreement between the COUNTY and the claimant. The COUNTY's response shall be submitted within 30 days after receipt of the further documents, or within the same period of time taken by the claimant to produce the additional information or documents, whichever is greater. The CONTRACTOR shall make these records and documents available to the COUNTY, State and/or the U.S. Government or their representatives at all reasonable times, without any direct charge.

4. If the claimant disputes the COUNTY's response, or if the COUNTY fails to respond within the statutory time period(s), the claimant may so notify the COUNTY within fifteen (15) days of the receipt of the response or the failure to respond, and demand an informal conference to meet and confer for settlement. Upon such demand, the COUNTY shall schedule a meet-and-confer conference within thirty (30) days.
5. If following the meet-and-confer conference, the claim or any portion thereof remains in dispute, the claimant may file a claim pursuant to Government Code 900 et seq. and Government Code 910 et seq. For purposes of those provisions, the time within which a claim must be filed shall be tolled from the time the claimant submits the written claim until the time the claim is denied, including any time utilized for the meet and confer conference.
6. If a civil action is filed to resolve any claim, the provisions of Public Contract Code 20104.4 shall be followed, providing for nonbinding mediation and judicial arbitration.

18.2 CLAIM FORMAT REQUIREMENTS: The CONTRACTOR will submit the claim justification in the following format:

1. Summary of claim merit and price plus clause under which the claim is made.
2. List of documents relating to claim:
 - a. Specifications
 - b. Drawings
 - c. Clarifications (RFIS)
 - d. Schedules
 - e. Other
3. Chronology of events and correspondence
4. Analysis of claim merit
5. Analysis of claim cost
6. Analysis of Time in CPM format
7. Cover letter and certification (form included herein)

18.3 PROFIT AND LOSS STATEMENT: If any claim submitted includes a request for overhead, the COUNTY may request a Profit & Loss statement and supporting documentation from CONTRACTOR. If requested, such documentation must be submitted for the COUNTY to consider the claim.

18.4 SUBMISSION OF CLAIM: Submission of a claim, properly certified, with all required supporting documentation, and written rejection or denial of all or part of the claim by COUNTY, is a condition precedent to any action, proceeding, litigation, suit, general conditions claim, or demand for arbitration by CONTRACTOR.

18.5 NOTICE OF THIRD-PARTY CLAIMS: The COUNTY shall provide notification to the CONTRACTOR within a reasonable time after receipt of any third-party claim relating to the Contract.

ARTICLE 19 BENEFICIAL OCCUPANCY

- 19.1 COUNTY IN POSSESSION:** Provided it does not unreasonably interfere with the prosecution of the work by CONTRACTOR, COUNTY may occupy or use the project site and occupy or use completed portions of the work before entire completion of the work. Such use and occupancy does not affect any obligation of CONTRACTOR, does not constitute an acceptance of the work or any part thereof by COUNTY, and does not affect any guarantees by CONTRACTOR.

ARTICLE 20 ACCEPTANCE OF PROJECT

- 20.1 FINAL INSPECTION – NOTICE OF COMPLETION:** When the work is substantially complete, CONTRACTOR shall perform its own inspection of the work, noting any deficiencies and correcting them. Once this is accomplished the CONTRACTOR may notify COUNTY in writing, at least two (2) calendar days in advance, that the work will be ready for final inspection on a certain date. On the date, COUNTY shall cause the work to be inspected and subjected to such tests as deemed required by the COUNTY for the purpose of determining if the work is complete in every respect. When the work is found to be in compliance with the Contract Documents, the COUNTY will recommend acceptance by the Board of Supervisors/Directors and request that a notice of completion be filed with the County Recorder.

ARTICLE 21 WARRANTIES AND GUARANTEES

- 21.1 GUARANTEE OF WORK:** All work is guaranteed by CONTRACTOR for a period of one (1) year from the recordation of the Notice of Completion, including but not limited to those resulting from inferior materials, equipment, or workmanship. Upon notice from COUNTY, CONTRACTOR shall promptly remedy any problems at CONTRACTOR's expense; otherwise, COUNTY shall proceed to remedy such problems and CONTRACTOR shall reimburse COUNTY for its expenses in connection therewith.

This one-year guarantee is in addition to any specific guarantee(s) provided for elsewhere in the Contract Documents or by suppliers or manufacturers.

CONTRACTOR is under an affirmative duty to disclose latent defects. At final inspection, CONTRACTOR shall advise COUNTY of known latent defects. If at final inspection there are undisclosed latent defects that are known to CONTRACTOR or reasonably should have been known to CONTRACTOR, the guarantee period is extended by the number of days prior to discovery of such latent defects by COUNTY.

ARTICLE 22 SUSPENSION OF WORK, TERMINATION

22.1 COUNTY's RIGHT TO STOP WORK OR TERMINATE THE CONTRACT IF:

1. CONTRACTOR shall be adjudged bankrupt or makes an assignment for the benefit of creditors; or
2. a receiver or liquidator is appointed for CONTRACTOR or any of its property; or
3. CONTRACTOR refuses or fails to supply sufficient properly skilled workers or suitable material; or
4. CONTRACTOR fails to prosecute the work with such diligence as will ensure its completion within the stipulated time period; or

5. CONTRACTOR fails to make payments to persons supplying labor or materials for the work;
or
6. CONTRACTOR does not comply with applicable law or instructions of COUNTY; or
7. CONTRACTOR is in material violation of any provision of the Contract Documents; then
COUNTY, without prejudice to any other right, remedy or relief it may be entitled to, with ten
(10) days written notice to CONTRACTOR, terminate the employment of CONTRACTOR and
its right to proceed, either as to the entire work, or at COUNTY's option, as to any portion
thereof as to which delay shall have occurred or breach or noncompliance relates, and
COUNTY may thereupon take possession of the affected work and complete the work by
another contract or otherwise as COUNTY deems expedient. In such case, CONTRACTOR
shall not be entitled to receive any further payment until the work is finished. If the unpaid
balance shall exceed the expense of completion and other damage, expense or loss of
COUNTY occasioned by CONTRACTOR's failure to properly perform, such excess shall be
paid CONTRACTOR. If such expense and damage exceeds the unpaid balance,
CONTRACTOR is liable to COUNTY for the excess, and COUNTY may retain the unpaid
balance. If COUNTY elects to proceed under this section, it may take possession of and
utilize in completing the work such materials, supplies, plants and equipment on site that may
be necessary or convenient for the purpose of completing the work.

If the construction of the project is damaged by an Act of God in excess of five percent (5%) of the contract amount, then the COUNTY may, without prejudice to any other right or remedy, terminate the project.

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SECTION 01000 - MOBILIZATION

PART 1 – GENERAL

1.01 RELATED DOCUMENTS:

The provisions of *The "Greenbook" Standard Specifications for Public Works Construction* shall apply except as modified herein.

1.02 SCOPE OF WORK:

The Work of this Section shall consist of furnishing all labor, materials, equipment, appliances and services necessary for the execution and completion of all Mobilization Work as shown on the Plans and as described in the Specifications including, but not necessarily limited to, the following:

- Preparatory operations including, but not limited to those efforts necessary for the movement of personnel, equipment, supplies, and incidentals to the Work site;
- All other operations which must be performed or costs incurred prior to beginning Work on the site;
- Provision and installation of Construction Fence per Technical Specification Section **02445 Temporary Chainlink Fence**;
- Provision of temporary utilities;
- Secure all required permits;
- Obtain temporary construction water & electrical service
- Submittals per General Provisions Section **7.1 Submittals** and Technical Specifications Section **01300 Submittals**.

1.03 SUBMITTALS:

As a part of mobilization, all submittals as specified in various individual Sections of the Specifications shall be submitted for approval by the AGENCY in the format specified in Technical Specifications Section **01300 Submittals** and within the time-frames specified in General Provisions Section **7.1 Submittals**. Submittals shall include all Materials Lists, Catalog Cuts, Shop Drawings, material and color samples, and Construction Schedule all as specified.

PART 2 - MATERIALS

2.01 TEMPORARY UTILITIES:

The permanent potable domestic water meter is already in place and available for use on the Project. Contractor shall furnish temporary water (if need exceeds safe rate of flow through existing water meter), and power complete with connecting piping, wiring, lamps, meters and similar equipment as required for the Work. Install, maintain, and remove temporary lines upon completion of the Work. All expenses in connection with temporary services and facilities shall be paid for by Contractor.

PART 3 – EXECUTION**3.01 GENERAL:**

- A. **Payment:** Payment for mobilization will be at the lump sum price bid for mobilization. Payment shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the Mobilization and De-mobilization Work as herein specified. The 10% retention shall apply to all Mobilization Work.

3.02 CLEAN-UP:

Contractor shall provide trash receptacles for collecting debris, shall remove debris from the job site at regular intervals not less than weekly and shall dispose of same in a legal manner.

END OF SECTION

SECTION 01200 – PROJECT IDENTIFICATION SIGN

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

The provisions of *The "Greenbook" Standard Specifications for Public Works Construction* shall apply except as modified herein.

1.02 SCOPE OF WORK:

The Contractor shall provide and erect a project identification sign at a location approved by the AGENCY. The sign shall be furnished by the Contractor and shall be labeled as show in Exhibit B-3 of the Special Federal Provisions. The project identification sign shall be erected five (5) working days to the start of work.

1.03 RESPONSIBILITY AND COORDINATION:

The Contractor shall revise all misspellings and any other corrections on the sign at no extra cost to the AGENCY.

Upon completion of the project, the project identification sign shall be removed from the project limits and disposed of by the Contractor. The cost of the project identification sign removal and disposal shall be considered incidental to the other items of work and no separate or additional payment will be allowed therefore.

The contract unit price paid for the project identification sign shall include full compensation for furnishing all labor, equipment, materials, and tools required for performing all work necessary to paint, label, assemble, and for erecting the project identification sign complete in place, and no separate or additional compensation will be allowed therefore.

END OF SECTION

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

The provisions of the *The "Greenbook" Standard Specifications for Public Works Construction* shall apply except as modified herein.

1.02 SCOPE OF WORK:

The Work of this Section shall consist of furnishing all labor, materials, equipment, appliances and services necessary for the execution and completion of all Submittals Work as shown on the Plans and as described in the Specifications including, but not necessarily limited to, the following:

- Preparation of Submittals Schedule;
- Submittals Planning;
- Submittals Preparation, Distribution and Transmittal, to include all of the following:
 - Product Data (Catalog Cuts);
 - Materials Lists;
 - Samples;
 - Record Drawings;
 - Turn-over Items;
- Submittals Schedule updating and distribution;

1.03 RELATED WORK SPECIFIED ELSEWHERE:

Construction Schedule	General Provisions Section 5.2
Submittals and Requests for Information	General Provisions Article 7

1.04 SUBMITTAL PLANNING:

- A. Processing Lead Time: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals.
1. Allow two (2) weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The AGENCY representative will promptly advise Contractor when a submittal being processed must be delayed for coordination.
 2. If a resubmittal is necessary due to corrections or revisions, process the resubmittal in the same manner as the initial submittal.
 3. Allow two (2) weeks for processing each resubmittal.

4. No extension of Contract Time will be authorized because of failure to transmit submittals to the AGENCY representative sufficiently in advance of the Work to provide the two week processing time specified.

B. Coordination and Completeness:

1. Contractor shall coordinate preparation and processing of submittals with the performance of the related Work. Transmit each submittal allowing sufficient lead time to obtain appropriate reviews and approvals and to avoid delays in the related Work.
2. Coordinate the submittal date for each submittal with the lead time needed for fabrication, purchasing, testing, delivery, review of other related submittals, and related Work that require sequential processing/completion.
3. Coordinate the transmittal dates for each different type of submittal so processing will not be delayed. Ensure concurrent transmittal of submittals for related portions of the Work that need concurrent review to allow the PA to verify that a coordinated work effort is being provided. AGENCY and PA each reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
4. Contractor is responsible to verify completeness of all submittals. Incomplete submittals will be rejected.

1.05 SUBMITTALS SCHEDULE:

- A. Concurrently with the development of Contractor's Construction Schedule (per General Provisions Section 5.2 CONSTRUCTION SCHEDULE), prepare a complete "Submittals Schedule" for all submittals. Submit the Submittals Schedule together with the Construction Schedule at the Pre-Construction meeting.
 1. Coordinate the Submittals Schedule with all subcontractors, with the schedule of values, with the Materials Lists and with the Construction Schedule.
 2. Itemize items on the Submittals Schedule in the chronological sequence planned for submission; include all submittals required by the Contract Documents. Provide the following information:
 - a) Scheduled date for the initial submittal for each item.
 - b) Related Specification Section number.
 - c) Submittal category (i.e. Product Data, Samples, Record Documents, Shop Drawing, etc.).
 - d) Name of subcontractor or supplier as applicable.
 - e) Description of the portion of the Work covered by the submittal.
 - f) Record successive date(s) of any resubmittal(s).
 - g) Record date of AGENCY approval of each submittal.

- B. Submittals Schedule Updating: Update the Submittals Schedule after each meeting or activity where revisions have been recognized or made.
- C. Distribution: Following receipt of review comments to the initial Submittals Schedule, on a monthly basis thereafter issue updated copies of the Submittals Schedule. Distribute copies to the PA, the AGENCY representative, all subcontractors, and all other parties required to comply with scheduled submittal dates. Keep an up to date copy of the Submittals Schedule posted in the Construction Office. Parties may be deleted from the distribution upon completion of all portion(s) of the Work assigned to such parties and such parties are no longer involved in construction activities.

1.06 SUBMITTALS PREPARATION AND TRANSMITTAL:

- A. Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
 - 1. Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record Contractor's review and approval markings and the action taken.
 - 2. Include the following information on the label for processing and recording action taken.
 - a) Project name.
 - b) Date.
 - c) Name and address of PA.
 - d) Name and address of Contractor.
 - e) Name and address of subcontractor (as applicable).
 - f) Name and address of supplier.
 - g) Name of manufacturer.
 - h) Number and title of related Specification Section.
 - i) Drawing number and detail references, as appropriate.
- B. Transmittal: Forward one electronic copy of each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to the AGENCY representative using a transmittal form. Submittals received from sources other than Contractor may be returned without action. If a submittal is rejected, submit one electronic copy of the resubmittal.
 - 1. When transmitting submittals, record relevant information and requests for data on the transmittal form. Include a Contractor's certification that information submitted complies with the Contract Document requirements as a part of each submittal. If the submittal is not in full accordance with the Contract Documents, record specific deviations from the Contract Document requirements, including minor variations and limitations, either on the transmittal form or on a separate attached sheet that is referenced on the form.
 - 2. Transmittal Form: Use AIA Document G 810, or AGENCY approved equal.

1.07 SUBMITTALS PROCESSING AND DISTRIBUTION:

- A. Processing: Upon receipt of the submittals, the AGENCY representative will retain one copy and forward an electronic copy to the PA who will retain one, and will return an electronic copy marked

with action taken. Electronic copies will be forwarded to the PA who will return an electronic copy with action taken.

1. Except for submittals for record information or similar purposes, where action and return is required or requested the AGENCY or PA will review each submittal, mark to indicate action taken, and return promptly.
 2. Verification of the submittals compliance with characteristics specified in the Contract Documents is Contractor's responsibility.
 3. Action Stamp: The AGENCY or PA will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
 - a) "No Exception Taken": When submittals are marked "No Exception Taken," that part of the Work covered by the submittal may proceed.
 - b) "Make Corrections Noted": When submittals are marked "Make Corrections Noted," that part of the Work covered by the submittal may proceed provided it complies with the notations and corrections marked on the submittal as well as the requirements of the Contract Documents.
 - c) Returned for Resubmittal: Submittals may be returned for resubmittal for various reasons. When a submittal is marked either "Submit Specified Item," "Rejected," or "Revise and Resubmit," Contractor shall not proceed with any part of the Work covered by the submittal, including purchasing, fabrication, delivery, or any other associated activity. Instead, the submittal shall either be revised to comply with the Contract Documents and resubmitted, or a new submittal shall be prepared in accordance with the notations and submitted; resubmit without delay.
 - d) Other Action: Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "Action Not Required".
 - e) Contractor shall repeat the submittal process as specified above for all submittals as necessary to obtain an action mark that will allow the Work to proceed.
- B. Distribution: Upon receipt of marked copies of the submittals from the PA, the AGENCY representative will forward four hard copies or one electronic copy of the marked submittal to the Prime Contractor for further distribution to the Subcontractor(s) and/or Supplier(s).
1. Do not proceed with the Work until an appropriately marked copy of the applicable submittal has been received from the AGENCY and is in the installer's possession.
 2. Do not permit use of unmarked copies of submittals in connection with construction.
 3. Contractor shall not permit submittals marked "Rejected," "Submit Specified Item", or "Revise and Resubmit" to be used at the Project site, or elsewhere where Work is in progress.

1.08 PRODUCT DATA ("CATALOG CUTS"):

- A. Submittal: Assemble Product Data submittals into a single submittal package for each construction trade or system (e.g. Plumbing, Electrical Lighting, Concrete, HVAC, etc.). Submittals shall consist of one electronic copy. Product Data submittals shall include all available printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."
1. Mark the copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to delete inapplicable information. Product Data submittals, as a minimum, shall include the following information:
 - a) Manufacturer's printed recommendations.
 - b) Compliance with recognized trade association standards.
 - c) Compliance with recognized testing agency standards.
 - d) Application of testing agency labels and seals.
 - e) Notation of dimensions verified by field measurement.
 - f) Notation of coordination requirements.
 2. Do not submit Product Data until Contractor has confirmed the product's compliance with requirements of the Contract Documents.

1.09 SAMPLES:

- A. General: Submit full-size, fully fabricated Samples cured and finished as specified, in the quantity specified in the respective Technical Specification section, and physically identical with the material or product proposed. Where quantities are not specified in the Technical Specification, submit a minimum of three samples, one will be returned marked with the action taken. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.
1. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Sample Submittals to match the PA's Sample when available. Include the following:
 - a) Generic description of the Sample.
 - b) Sample source.
 - c) Product name or name of manufacturer.
 - d) Certification of compliance with the specified standards.
 - e) Availability and delivery time.
 2. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.

3. Preliminary submittals: Where Samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material or product. Preliminary submittals will be reviewed and returned with the PA's mark indicating selection and other action.
 4. Maintain appropriately marked sets of Samples, as returned by the AGENCY, at the Project site for quality comparisons throughout the course of construction.
- B. Distribution of Samples: If additional sets of samples are needed for distribution to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work, Contractor shall submit samples in sufficient quantities for such distribution. Do not distribute unmarked copies of sample to others involved in the Work.

1.10 MATERIALS LISTS:

- A. Submittal Requirements: Submitting a catalog number and manufacturer's name as a materials list stating that the items will be furnished to meet the Specifications will not be acceptable. Contractor shall submit a complete materials list for approval by the AGENCY representative prior to performing any Work. Catalog data and full descriptive literature must be submitted whenever the use of items different than those specified is requested. Notarized certificate must be submitted by plastic pipe and fitting manufacturer indicating that material complies with the Project Specifications, unless material has been previously approved and used on other projects by the AGENCY.

Material list shall be submitted in a format similar to the following:

<u>Item</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Model No.</u>
1.	Pressure Supply Line	Lasco	Sch. 40
2.	Lawn Head	Rainbird	2400
etc.	etc.	etc.	etc.

1.11 "RECORD" PRINTS:

- A. Changes: Record accurately on one set of blue-line prints all changes in the Work constituting departures from the original Contract Plans. For example, changes in pressure and non-pressure irrigation line locations.
- B. Legibility and Approval: The changes and dimensions shall be recorded in a legible and workmanlike manner to the satisfaction of the AGENCY. Prior to final inspection of the Work, submit "record" prints to the AGENCY representative for approval.
- C. Reference Points: Dimension from two permanent points of reference (buildings, monuments, sidewalks, curbs, pavement, etc.). Data to be shown on "record" prints shall be recorded day-to-day as the project is being installed.
- C. As-built Items: Show locations and depths of the following types of underground items:
1. Point(s) of connection for irrigation, domestic water, gas, sewer, electric and similar underground utilities.

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2. Routing of underground conduits, irrigation pressure lines and utility lines (dimension maximum 100 feet on center along routing).
3. All types of valves in various piping systems, including gate valves, quick coupler and remote control valves.
4. Routing of irrigation control wires.
5. Related equipment (as may be directed).

D. Maintain record prints on site at all times.

PART 2 - MATERIALS (See 'MATERIALS' part of each specification section.)

PART 3 - EXECUTION (See 'EXECUTION' part of each specification section.)

END OF SECTION

SECTION 02110 - SITE CLEAR AND GRUB

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

The provisions of *The "Greenbook" Standard Specifications for Public Works Construction* shall apply except as modified herein.

1.02 SCOPE OF WORK:

Furnish all material, equipment and labor necessary to perform all clearing and grubbing work complete, including but not limited to the following:

Protection of trees indicated on drawings to remain.

Clearing and grubbing of all vegetation from site work areas.

Removal and disposal of all deleterious materials.

Furnishing, developing, applying and providing dust control watering equipment as required for the project.

1.03 RELATED WORK SPECIFIED ELSEWHERE:

Planting
Irrigation

Section 02480
Section 02441

1.04 RESPONSIBILITY AND COORDINATION:

Contractor shall secure and maintain all required permits and licenses, and pay all fees necessary to legally complete the work of this section.

Contractor shall notify utility companies for all utilities to be cut off, modified or relocated, and shall maintain and protect all active utilities.

Contractor shall coordinate all work with the AGENCY in an effort to avoid any conflicts with the parks maintenance schedules.

1.05 PROTECTION AND SAFETY:

Contractor shall provide signs in necessary places to exclude persons, except those connected with the work, from entering the working area. Contractor is responsible for preventing unauthorized persons from entering working area.

Protect the project site and adjacent properties from dirty water, mud and water accumulated due to Contractor's operations, rainfall runoff or water that enters the project site from any other sources.

PART 2 - MATERIALS - Not applicable.

PART 3 - EXECUTION

3.01 GENERAL REMOVAL WORK:

Removal work shall be carefully done to avoid damage to all existing facilities to remain.

3.02 SITE CLEARANCE AND DISPOSAL:

Clear the sites to be improved of grass, shrubs, weed growth, rubbish and debris, etc., that are to be removed for construction of the improvements shown on the construction plans. Roots three inches in diameter and larger, rocks and broken masonry larger than 1 inch in the greatest dimension, shall be removed to a minimum depth of 12" below finished grade.

All deleterious materials shall be disposed of off the site in a legal manner by the Contractor, who shall make all necessary arrangements and pay all related costs.

Miscellaneous existing underground facilities, drainage devices, secondary water lines, cables, abandoned oil and water lines, leaching fields, irrigation pipes, wiring, etc, located 12 inches or more below proposed finish grade may be abandoned in place or removed as necessary for proper completion of the work. All miscellaneous active lines that are uncovered during the grading operations shall be protected.

3.03 UTILITIES:

Inactive or abandoned utilities shall be disconnected, removed, and plugged or capped subject to the local governing ordinances.

Should the Contractor encounter any existing underground utilities not shown on the drawings, he shall at once notify the PA who will determine further procedure.

3.04 DEBRIS BURNING:

Burning of debris will not be permitted.

3.05 DUST CONTROL:

Dust shall be kept to a minimum during site clearing operations by means of wetting the site or other approved method. Wash down all existing sidewalks and roadways on and off the site after all operations are complete.

END OF SECTION

SECTION 02210 - SITE GRADING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

The provisions of *The "Greenbook" Standard Specifications for Public Works Construction* shall apply except as modified herein.

1.02 SCOPE OF WORK:

Furnish all material, equipment and labor as necessary to perform all earthwork complete, including, but not limited to, the following:

SWPPP and WQMP

Rough grading as shown on the plans, including cut, fill, backfill and backfill compaction

Subgrade preparation trail

Finish grading of the site

Excavation and backfill for all footings

Soil compaction as required

Soil testing as required

Protective measures

Dust and noise abatement

Borrow excavation as directed

1.03 RELATED WORK SPECIFIED ELSEWHERE:

Excavation and backfill for any irrigation

Section 02441

Fine finish grading in landscaped areas (Planting)

Section 02480

1.04 QUALITY ASSURANCE:

A. All work shall comply with the requirements of the following:

(1) The Grading Code of the County of Riverside

(2) California Building Code (CBC) 2013 Edition

B. Tests and Inspections:

(1) All work in this section shall be subject to the observation and testing as required by the Soils Engineer selected by the AGENCY representative. The Soils Engineer shall submit a compaction report to the AGENCY representative, certifying the Contractor's compliance with the plans, specifications, soils reports and County grading ordinance in placing all fills and backfills. The Soils Engineer shall conduct all specified tests to insure compliance. Soils Engineer shall also test, identify and

make recommendations on borrow site fill materials as specified in this section.

- (2) Number and location of soils tests to be at the discretion of the Soils Engineer to assure uniformity and compliance with the County grading ordinance, but at least one test per two vertical feet of fill, but not less than one test per 500 cubic yards, all as approved by the AGENCY representative.
- (3) The costs of services of the Soils Engineer, specified field density and maximum density tests, compaction reports and certificates of compliance, shall be borne by the Contractor. Additional tests and re-compactions made necessary by inadequate compaction, inadequate materials provided by contractor, and inaccurate excavations shall be paid for by the Contractor at no additional cost to the AGENCY.

1.05 GRADING OPERATIONS:

It is the intent of the drawings that the grading shall be an export operation an estimated amount of 211 cubic yards of export material. No import is contemplated. If during grading operations an excess or deficiency of earth becomes apparent, the grading shall be completed with site material conforming as nearly as possible to the finish grades shown and insuring positive drainage without additional cost to the AGENCY.

1.06 WATER:

Contractor shall make arrangements with the Eastern Municipal Water AGENCY to obtain construction water.

1.07 JOB CONDITIONS:

A. Protection of Existing Items:

- (1) The Contractor shall furnish, place and maintain all shoring and bracing as may be required for protection of existing structures and utility services during execution of the work. The adequacy of and responsibility for this shall be the Contractor's completely.
- (2) All bench marks, monuments and other reference points shall remain undisturbed unless specifically directed otherwise by the AGENCY representative.

B. Protection of Public:

The Contractor shall provide such barricades, temporary fences, gates, lights, warning signs, guards, and other measures as may be necessary to assure safety and to deter trespassers. These provisions shall be maintained during the entire duration of the work. These temporary facilities shall be constructed, painted, and maintained in strict conformance with the requirements of applicable codes and other governing authorities.

C. Coordination with Others:

- (1) Contractor shall give written notice to the Owner, utility agencies, and other legal authorities prior to starting work.
- (2) Contractor shall coordinate his operations with other trades, utility firms, and other affected public departments to assure continuity for both access and service of all utility, service distribution lines, in conformance with applicable requirements of these organizations. No services to any property shall be impeded.

D. Abandoned and Unknown Utilities:

- (1) Abandoned lines, meters and boxes, obstructions or piping, shall be removed, plugged, or capped in accordance with the requirements and approval of the agencies affected, or as directed by the AGENCY representative. Coordinate all such work with applicable mechanical or electrical trade having responsibility. Remove all abandoned utility lines, pipes, or conduits, to a point outside new construction lines.
- (2) Where unmarked utility lines or other underground obstructions or piping are uncovered within the work area, notify the AGENCY representative, or the agencies or service utility companies having jurisdiction and take necessary measures to prevent interruption of service. Should such lines or services be damaged, broken, or interrupted through the Contractor's own negligence, those services shall be repaired immediately and restored by him at his own expense.

PART 2 - MATERIALS

2.01 IMPORT: (If Applicable)

- A. All import soil used for fill in landscape areas shall be Class 'A' topsoil per latest edition of *The "Greenbook" Standard Specifications for Public Works Construction*, Section 212.
- B. All import soil used for structural fill shall be non-expansive, predominantly granular material free from organic contaminants, and capable of attaining the required compacted densities.
- C. All import soil must be approved at the borrow site by the Soils Engineer.

2.02 FILL MATERIAL:

- A. All fill material must be approved by the Soils Engineer.
- B. On-site excavated materials may be used as approved by the Soils Engineer. Landscape fill shall be Class 'A' topsoil.
- C. Rocks larger than 3 inches in diameter shall be removed from all fills to be compacted.

2.03 GRANULAR BEDDING MATERIAL:

Where called for on the plans, granular bedding material shall be crushed stone or pea gravel conforming to the following gradient:

<u>Sieve Size</u>	<u>Passing</u>
3/4"	100
1/2"	95
4"	5

2.04 AGGREGATE BASE:

Crushed aggregate base shall consist entirely of crushed rock and rock dust conforming to the requirements of Section 200-2.2 of *The "Greenbook" Standard Specifications for Public Works Construction* and the Soils Investigation Report, maximum size aggregate shall be 3/4 inch.

PART 3 - EXECUTION**3.01 GENERAL:**

- A. All demolition and clearing and grubbing of objectionable materials must be completed to the satisfaction of the Soils Engineer before starting earthwork grading and excavation.

B. Survey:

Contractor shall provide all survey services necessary for horizontal and vertical control points, layouts, lines and levels, staking of work.

Any corrections to the grading work required to obtain proper drainage and to bring it into conformance with the intent of the plans and specifications and County codes shall be performed by Contractor at no additional cost to the AGENCY.

- C. Contractor shall check all existing grades prior to initiating grading work as necessary to verify that the project can be graded as proposed. Any discrepancies found should immediately be brought to the attention of the AGENCY representative in writing.

3.02 ROUGH GRADING:

- A. Rough grading of the site shall be in accordance with indicated contours, elevations, and limit lines shown on the plans and shall be sufficient to allow for the depths of slabs, paving, sub-base, topsoil, and compacted fills. Tolerance for rough grading is 1/10th of a foot. In all areas, appearance and positive drainage will be governing factors in acceptability of grades.

- B. Graded material shall not be left in loose layers, but shall be stockpiled for use as compacted fill or compacted in thin layers as grading takes place in accordance with the requirements for compacted fill.
- C. Scarification to a minimum depth of six (6) inches or to a depth permitting twelve (12) inches of controlled compacted fill shall be performed on all areas indicated to receive paving.
- D. The Soils Engineer shall inspect all scarified surfaces prior to placement of compacted fill.

3.03 CONTROLLED FILL:

- A. Fill material shall be spread in uniform lifts of six (6) to eight (8) inches of uncompacted thickness.
- B. Prior to starting compaction, the fill material shall be brought to optimum moisture content by spraying with water if too dry, and aeration if too wet.
- C. Thoroughly mix each lift to assure uniform distribution of water content.
- D. Bring fills to suitable elevations above required grades to provide for effects of shrinkage and settlement.
- E. For all areas designated to receive slabs and pavement and within a perimeter five (5) feet outside these areas, each lift shall be compacted to a minimum of 90% of maximum density as determined by ASTM D1557-70.
- F. Where fill is required in planting areas each lift shall be compacted to a minimum of 85% maximum density.
- G. Perform all compaction by suitable mechanical equipment and methods approved by the Soils Engineer.
- H. Inspection and field tests shall be carried on during grading by the Soils Engineer to assist the Contractor in obtaining the required degree of compaction and the proper moisture content. Where compaction of less than 90% is indicated, additional compactive effort shall be made with adjustment of the moisture content as necessary until a minimum of 90% compaction is obtained.
- I. The material in any soft or spongy spots shall be removed to such depth as directed by the Soils Engineer and replaced with suitable material, properly compacted.
- J. Sub-grades to receive slabs and pavements shall be finished to a tolerance of plus or minus one-half (1/2) inch.

3.04 FINE GRADING:

Fine grading as specified in this section is distinguished from finish grading specified under Section 02480 Planting.

Finish grades shall slope to drain without water pockets or irregularities and shall conform to the intent of all plans and specifications after thorough settlement and compaction of the soil. Fine grading shall allow for soil preparation work as specified under section 02480 Planting, such that finish grades shall meet the elevations & grades indicated on the plans. Finish grades shall meet all existing or established controls of sidewalks and curbs, and shall be of uniform slope and grade between points of fixed elevations or elevation controls and from such points to established grades. Tolerance for finish grading is 1/4 inch, plus or minus.

Any corrections to the grading work required to obtain proper drainage and to bring it into conformance with the intent of the plans and specifications and County codes shall be performed by Contractor at no additional cost to the AGENCY.

3.05 EXCAVATION:

The Contractor shall make all necessary excavation for footings and slabs and to any additional excavation necessary to provide ample room for installation of concrete forms where required.

Footings may be poured against undisturbed soil if Soils Engineer approves.

Bottom of excavations shall be level, free from loose material and brought to the indicated or required grades in undisturbed earth. All excavations shall be kept free from standing water. The Contractor shall do all pumping or draining that may be necessary in carrying on the work. Should excavations for footings, through error, be excavated to a greater depth of size than indicated or required, such additional depth or size shall be filled with concrete, at the Contractor's expense.

3.06 BACKFILLING:

Select site material shall be used for backfill of trenches and shall be free from large stones and clods. Material shall be as approved by the Soils Engineer.

Backfill shall be deposited in layers of maximum six inch thickness.

Layers of backfill shall be moistened with water, the amount to be rigidly controlled to insure optimum moisture conditions for the type of fill material used. Excess water causing saturated earth beneath footings, walks, and curbs will not be permitted.

Backfill shall be compacted by suitable means to a minimum 90%.

All trenches shall be backfilled in accordance with this section, and may be tested at the discretion of the Engineer.

3.07 DUST AND NOISE ABATEMENT:

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During the entire period of construction, site areas shall be kept sprinkled as necessary to reduce dust in the air and annoyance to surrounding properties. Adhere to the requirements of County ordinances for dust and noise control.

END OF SECTION

SECTION 02221 - DECOMPOSED GRANITE**PART 1 - GENERAL****1.01 SCOPE OF WORK:**

- A. Subgrade preparation
- B. Furnishing and installing decomposed granite and stabilizer

1.02 APPROVALS:

- A. Submit 10 pound sample of decomposed granite for approval prior to ordering delivery. Attach supplier's certification of testing.
- B. Subgrade shall be approved prior to placing.

PART 2 - MATERIALS**2.01 DECOMPOSED GRANITE:**

- A. Decomposed granite shall be an imported blend of 1/4" minus crushed granite and clay, pre-mixed prior to delivery:

<u>% Passing</u>	<u>Screen Size</u>
100	3/8"
98	No. 4
77	No. 8
58	No. 16
45	No. 30
32	No. 50
22	No. 100
14.6	No. 200

2.02 SOIL STABILIZER:

Suitable material: 'Soil Secure,' available from Southwest Boulder & Stone, (877)792-7625

PART 3 - EXECUTION**3.01 SUBGRADE PREPARATION:**

- A. Rough grade to 3 inch depth below finish grade. Subgrade shall be smooth and shall follow the drainage planes as shown on the drawings.

3.02 PRE-EMERGENT WEED CONTROL:

Contractor to apply product with a properly calibrated spreader which will assure accurate, even particle distribution at a rate of 4.6 lbs./1,000 Sq. Ft or as specified by product manufacturer.

3.03 TOPPING COURSE:

- A. Scarify subgrade to one inch depth. Thoroughly moisten surface without flooding.
- B. Blend Soil Secure at the rate of 10 lbs. of Stabilizer per ton of decomposed granite. Blending may be done with cement mixer, pug mill, front end loader, or any similar piece of equipment. It is **essential** that the Stabilizer be mixed **thoroughly** and **uniformly** through the decomposed granite. Proper mixing is a must for a successful application.
- C. Spread topping material in one 2 inch layer. Level the topping course to smooth plane surface. Scarify, re-grade, and re-compact areas not conforming to finish grades as shown on the drawings.
- D. Apply water until moisture penetrates to full depth of the Soil Secure. Water activates Stabilizer so it is **essential** that the **full depth** of the material receives water at this time.
- E. Upon thorough moisture penetration, compact the stabilized decomposed granite. Compaction can be done with small riding roller, power walk-behind roller, sod roller, vibrating plat tamp or similar.
- F. Allow finished surface enough time to dry completely. Set-up time varies, depending upon weather conditions.

3.04 WEED CONTROL:

Contractor is responsible for eradicating weeds from the decomposed granite surface.

END OF SECTION

SECTION 02441 - IRRIGATION**PART 1 - GENERAL****1.01 SCOPE OF WORK:**

The work required is indicated on the drawings and includes, but is not limited to, lawn and shrub irrigation systems, automatic controller, remote control valves, quick coupler valves, and water and electric services.

1.02 SUBMITTALS:**A. Materials List:**

1. Complete material list shall be submitted prior to performing any work. Catalog data and full descriptive literature must be submitted whenever the use of the items different than those specified is requested. Notarized certificate must be submitted by plastic pipe and fitting manufacturer indicating that material complies with specifications, unless material has been previously approved.
2. Material list shall be submitted using the following format (double spaced between each item):

<u>Item</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Model</u>
1.	Pressure Pipe	Lasco	Sch. 40
2.	Lawn Head	Rainbird	1804-SAM-PRS
Etc.	Etc.	Etc.	Etc.

B. Record Drawings:

1. Record accurately on one set of contract drawings all changes in the work constituting departures from the original contract drawings.
2. The changes and dimensions shall be recorded in a legible and workmanlike manner to the satisfaction of the AGENCY representative. Prior to final inspection of work, submit record drawings to AGENCY representative for approval.
3. Dimensions from two permanent points of reference (buildings, monuments, sidewalks, curbs, pavement, etc.). Data to be shown on record drawing shall be recorded day to day as the project is being installed. All lettering on drawings shall be minimum 1/8 inch in size.
4. Show locations and depths of the following items:

- a. Point of connection.
 - b. Routing of sprinkler pressure lines (dimension maximum 100 feet along routing)
 - c. Ball valves.
 - d. Sprinkler control valves.
 - e. Quick coupling valves.
 - f. Routing of control wires.
 - g. Related equipment (as may be directed).
5. Maintain record drawings on-site at all times. Upon completion of work, transfer all as-built information and dimensions to reproducible sepia prints.

1.03 INSPECTIONS:

A. Inspections Will Be Required For:

1. Pressure test of irrigation main line.
2. Coverage test.
3. Final inspection/start of maintenance. Final inspection shall be performed by the AGENCY in the presence of owner or his representative.
4. Final acceptance.
5. Ball Valves
6. Sprinkle Control Valves
7. Sprinkler Lines

B. Inspection Requests:

Contractor shall notify the AGENCY representative in advance for requesting all inspections as follows:

Pressure supply line installation and testing - 36 hours (1-2 working days)
System layout - 36 hours (1-2 working days)
Coverage Tests - 36 hours (1-2 working days)

Final Inspection - 48 hours (2 working days)

When inspections have been conducted by other than the AGENCY representative, the Contractor shall show evidence of when and by whom these inspections were made.

No inspection will commence without "record" prints. In the event the Contractor calls for an inspection without up to date "record" prints, without completing previously noted corrections, or without preparing the system for inspection, the inspection will be canceled and the Contractor back charged for the direct costs of all AGENCY personnel time and consultant time lost.

C. Closing In Uninspected Work:

Do not allow or cause any of the work of this section to be covered up or enclosed until it has been inspected, tested, and approved by the AGENCY representative.

D. Coverage Test:

When the sprinkler system is completed, Contractor shall perform a coverage test in the presence of the AGENCY representative and the PA to determine if the water coverage for planting areas is complete and adequate. This test shall be accomplished before any planting.

E. Hydrostatic Tests:

1. All pressure lines shall be tested under a hydrostatic pressure of 150 psi for a period of not less than two hours.
2. All hydrostatic tests shall be made in the presence of the AGENCY representative. No pressure line shall be backfilled until it has been inspected, tested, and approved in writing.
3. Contractor shall furnish necessary force pump and all other test equipment.

1.04 TURNOVER ITEMS:

A. Controller Charts:

1. Record drawings must be approved by AGENCY representative before charts are prepared.
2. Provide one controller chart for each automatic controller. Chart shall show the area covered by controller.
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. Chart shall be a blackline print with a different color used to show the area of coverage for each station.
5. When completed and approved, the chart shall be hermetically sealed between two pieces of plastic, each piece being a minimum 20 mils in thickness.

B. Operation and Maintenance Manuals:

1. Two individually bound copies of operation and maintenance manuals shall be delivered to the AGENCY representative 10 calendar days prior to final inspection. The manuals shall describe the material installed.
2. Each complete, bound manual shall include the following information:
 - a. Index sheet stating Contractor's address and telephone number, duration of guarantee period, list of equipment including names and addresses of local manufacturer representatives.
 - b. Complete operating and maintenance instructions for all equipment.
 - c. Spare parts lists and related manufacturer information for all equipment.

C. Equipment:

1. Supply as part of this contract the following items:
 - a. 4 additional sprinkler heads of each type and spray pattern shown.
 - b. Two (2) wrenches for disassembly and adjustment of each type of sprinkler head involved.
 - c. Three 30-inch sprinkler keys for manual operation of control valves.
 - d. Two keys for each automatic controller.
 - e. Two couplers with a 3/4" bronze hose bib. Bent nose type with hand wheel and two coupler keys.
 - f. One soil probe 36 inches in length, Oakfield Model B, or equal.
 - g. One valve box cover key or wrench.
 - h. One 5-foot tee wrench for operating gate valves 3 inches or larger.

- i. Backflow device valve handles and Water Department inspection documentation.
2. The above equipment shall be turned over to the AGENCY representative at the final inspection.

1.05 GUARANTEE:

- A. General: The entire sprinkler system, including all work done under this contract, shall be guaranteed against all defects and fault of material and workmanship for a period of one (1) year following the filing of the Notice of Completion. All materials used shall carry a manufacturer's guarantee of one (1) year.

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 the AGENCY within ten (10) calendar days of receipt of written notice from the AGENCY representative. When the nature of the repairs as determined by the AGENCY representative constitute an emergency (e.g. broken pressure line) the AGENCY 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 AGENCY representative by the Contractor, all at no additional cost to the AGENCY.

- B. Form of Guarantee: Guarantee shall be submitted on Contractors own letterhead as follows:

FORM OF: 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 defects in materials or workmanship which may develop 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 AGENCY. We shall make such repairs or replacements within 10 calendar days following written notification by the AGENCY. In the event of our failure to make such repairs or replacements within the time specified after receipt of written notice from the AGENCY representative, we authorize the AGENCY to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.

PROJECT: _____
LOCATION: _____

SIGNED: _____

ADDRESS: _____

PHONE: _____

- C. After the system has been completed, the Contractor shall instruct the AGENCY representative in the operation and maintenance of the system and shall furnish a complete set of operating instructions.
- D. Any settling of trenches which may occur during the one-year period following acceptance shall be repaired to AGENCY representative satisfaction by the Contractor without any additional expense to the AGENCY. Repairs shall include the complete restoration of all damage to planting, paving or other improvements of any kind as a result of the work.

1.06 IRRIGATION SYSTEM DESIGN:

Irrigation design is based on 82 psi available water pressure at 26 gpm. Contractor shall verify working water pressure prior to construction. Should a discrepancy exist, notify PA prior to beginning construction.

PART 2 - MATERIALS**2.01 GENERAL:**

Materials or equipment installed or furnished that do not meet the AGENCY standards will be rejected and shall be removed from the site at no expense to the AGENCY.

2.02 PIPE:

- A. Pressure supply line from point of connection through backflow prevention unit shall be as indicated on plan.
- B. Pressure supply lines 2-1/2 inches in diameter and up to 6 inches in diameter downstream of backflow prevention unit shall be Class 315 solvent weld PVC.
- D. Pressure supply lines 2 inches in diameter and smaller downstream of the backflow prevention unit shall be Schedule 40 solvent weld PVC.
- E. Non-pressure lines shall be Schedule 40 PVC for 3/4".

2.03 COPPER PIPE AND FITTINGS:

- A. Copper pipe shall be Type 'K', hard tempered ASTM B 88 and fittings shall be wrought solder joint type in accordance with ANSI B16.22.
- B. Joints shall be soldered with silver solder, conforming to ASTM B206.

- C. Contractor to use dielectric fittings at copper/PVC connections.

2.04 BRASS PIPE AND FITTINGS:

- A. Brass pipe shall be 85 percent red brass, ANSI, Schedule 40 screwed pipe.
- B. Fittings shall be medium brass, screwed 125-pound class.

2.05 GALVANIZED STEEL PIPE AND FITTINGS:

- A. All galvanized steel pipe shall be Schedule 40, threaded, coupled, and hot-dipped galvanized, and shall comply with the requirements of ASTM A 120-66 or ASTM A 53-67.
- B. All fittings for galvanized steel pipe shall be 150-pound rated galvanized malleable iron, banded pattern.
- C. Pipe sizes indicated on the drawings are nominal inside diameter, unless otherwise noted.

2.06 PLASTIC PIPE AND FITTINGS:

- A. All plastic pipe shall bear the following markings: manufacturer's name, nominal pipe size, schedule or class, type of material, pressure rating in psi, NSF seal of approval, and the date of extrusion.
- B. All plastic pipe shall be extruded of an improved PVC virgin pipe compound.
- C. Rubber gasket PVC pipe, couplings, and fittings shall conform to ASTM D 1784 Type I, Grade I, 2,000-psi design stress. Couplings, rubber gaskets, and fittings shall be as approved by the pipe manufacturer.
- D. Ring-type rubber gasket couplings shall permit a 5 degree deflection of the pipe at each coupling (2-1/2 degree each side) without exfiltration or infiltration, cracking or breaking.
- E. All fittings shall be standard weight Schedule 40 and shall be injection molded of an improved PVC fitting compound. Threaded plastic fittings shall be injection molded. All tees and ells shall be side gated.
- F. All threaded nipples shall be standard weight Schedule 80 with molded threads.
- 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.

2.07 BACKFLOW PREVENTION UNITS:

The backflow prevention unit shall be as indicated on the drawings.

2.08 BACKFLOW PREVENTION ENCLOSURE:

The backflow prevention device enclosure shall be as manufactured by Strong Box, Model BC-30CR for 1 1/4" backflow device or approved equal. Install one for each backflow device.

2.09 VALVES:

A. Ball Valves:

1. Ball valves 2 inches or smaller shall have screwed joints and brass bodies.
2. All gate valves shall have a minimum working pressure of not less than 150 psi and shall conform to AWWA standards.

B. Quick Coupling Valves:

Body of valves shall be brass with a wall thickness guaranteed to withstand normal working pressure of 150 psi without leakage. Valves shall have 3/4-inch female threads opening at base, with two-piece body. Construct valves to be operated only with a coupler, designed for that purpose. Coupler is inserted into valve and a positive, watertight connection shall be made between coupler and valve. Hinge cover shall be brass with a yellow rubber-like vinyl cover bonded to it.

C. Remote Control Valves:

Valves shall be spring-loaded, self-cleaning, packless diaphragm activated, of a normally closed type.

2.10 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 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. Ball valve boxes shall be round plastic boxes with bolt-down covers marked "BV," heat branded in 2" high characters; AMETEK or approved equal.

F. Remote control valve boxes shall be rectangular plastic boxes with bolt-down covers marked "RCV"; and with the valve identification number heat branded in 2" high characters; AMETEK or approved equal.

G. Colors of boxes shall be green.

2.11 AUTOMATIC CONTROLLER:

Automatic controller shall be as called for on the plans. All controllers shall be enclosed in a vandal-resistant, waterproof enclosure, Weathermatic or approved equal.

2.12 ELECTRICAL:

A. All electrical equipment shall be NEMA Type 3, waterproofed for exterior installation.

B. All electrical work shall conform to local codes and ordinances.

2.13 WIRING:

A. Remote control wire shall be direct-burial AWG-UF type, sized according to manufacturer's specifications, and in no case smaller than 14 gage.

B. Connections shall be either epoxy-sealed packet-type or Penn-Tite connectors.

C. Common wires shall be white in color. (Where two or more controllers are used, the common wires shall be white with a different color stripe for each controller.) Control wires shall be black (where two or more controllers are used, the control wires shall be a different color for each controller.) These colors shall be noted on as-built plans located on controller door.

2.14 SPRINKLERS:

Sprinklers shall be as called for on the plans.

PART 3 - EXECUTION

3.01 GENERAL:

A. Water Supply:

Connections to or the installation of the water supply shall be at the locations shown on the drawings. Contractor to verify field conditions and existing water supply line in the field. Contractor to contact PA if field conditions are not as shown prior to making any revisions to the point of connection. Minor changes caused by actual site conditions shall be made at no additional cost to the AGENCY.

B. Electrical Service:

Contractor shall make 120V connection to the irrigation controllers.

C. Layout:

Layout irrigation systems 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.

D. 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.

E. Grades:

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.

F. 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.

G. Discrepancies:

1. In the event of discrepancy, notify the AGENCY representative and the PA.
2. Do not proceed with installation in areas of discrepancy until all discrepancies have been resolved.

H. Field Measurements:

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.

3.02 TRENCHING:

- A. Dig trenches and support pipe continuously on bottom of ditch. Lay pipe to an even grade. 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, maximum 24 inches on pressure supply lines 2 inches and smaller.
- C. Provide minimum cover of 18 inches, maximum 24 inches for control wires.
- D. Provide minimum cover of 12 inches, maximum 16 inches for non-pressure lines.
- E. Provide minimum cover of 24 inches, maximum 30 inches for all pipe sleeved under paving.
- F. Where it is necessary to excavate adjacent to existing trees, the Contractor shall avoid injury to trees and tree roots. Excavation in areas where 2-inch and larger roots occur shall be done by hand. All roots 2 inches and larger in diameter shall be tunneled under and shall be heavily wrapped with wet burlap to prevent scarring or drying. Where trenching machine is run close to trees having roots smaller than 2 inches in diameter, the wall of the trench adjacent to the tree shall be hand trimmed, making a clean cut through the roots. Roots 1 inch and larger in diameter shall be painted with two coats of Tree Seal or approved equal. Trenches adjacent to trees shall be closed within 24 hours.

3.03 BACKFILLING:

- A. Initial backfill on all lines shall be of fine granular material with no foreign matter larger than 2 inch in size.
- 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. 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 without specific prior approval.
- D. Under no circumstances shall truck wheels be used to compact soil.
- E. Provide sand backfill a minimum of 6 inches over and under all piping under paved areas.

3.04 PIPING:

- A. Piping under existing pavement may be installed by jacking, boring, or hydraulic driving. No hydraulic driving is permitted under asphaltic concrete pavement.
- B. Cutting or breaking of existing pavement is not permitted.
- C. Carefully inspect all pipe and fittings before installation, removing dirt, scale, and burrs and reaming; install pipe with all markings up for visual inspection and verification.
- D. Exercise care in handling, loading, unloading, and storing plastic pipe and fittings; store plastic pipe and fittings under cover until ready to install; transport plastic pipe on a vehicle with a bed long enough to allow the pipe to lay flat, avoid undue bending and any concentrated external load.
- E. Remove all dented and damaged pipe sections.
- F. All lines shall have a minimum clearance of 6 inches from each other and 12 inches from lines of other trades.
- G. Parallel lines shall not be installed directly over one another.
- H. In solvent welding, use only the specified primer and solvent cement and make all joints in strict accordance with the manufacturer's recommended methods; allow solvent welds at least 15 minutes setup time before moving or handling and 24 hours curing time before filling.
- I. 360 degree applicators shall be used to apply primer and solvent on sizes 2 inches and larger.
- J. Centerload all plastic pipe prior to pressure testing.
- K. All threaded plastic-to-plastic connections shall be assembled using Teflon tape.
- L. 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.

3.05 ASSEMBLIES:

- A. Install all assemblies specified herein according to the respective detail drawings or specifications, using best standard practice.
- B. Install backflow assemblies at locations approved in the field and at height required by local codes.
- C. Valves shall be installed in shrub areas whenever possible per AGENCY standards.

- D. Each valve box shall be installed on a foundation of pea gravel backfill, 3 cubic feet minimum. Valve boxes shall be installed with their tops 3/4 inch above the surface of surrounding finish grade in lawn areas.

3.06 CONTROLLER:

- A. The exact location of the controller shall be approved by the AGENCY representative before installation.
- B. Controller shall be located at locations indicated on plan.
- C. Contractor to coordinate installation of vandal prevention measures for solar panels with the AGENCY.
- D. The irrigation system shall be programmed to operate during the periods of minimal use of the design area.

3.07 WIRING:

- A. Wiring shall occupy the same trench and shall be installed along the same route as the pressure supply lines and shall be located below the supply lines wherever possible.
- B. Where more than one wire is placed in a trench, the wiring shall be taped together at intervals of 12 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 turn, 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.

3.08 FLUSHING THE SYSTEM:

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

3.09 SPRINKLER HEADS:

- A. Sprinkler heads shall be installed as designated on the drawings and per AGENCY standards.

- B. Spacing of heads shall not exceed maximum indicated on the drawings.

3.10 ADJUSTING THE SYSTEM:

- A. Contractor shall adjust valves, align heads, and check coverage of each system prior to coverage test.
- B. If it is determined by the AGENCY 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 without any additional charge to the AGENCY.
- C. The entire system shall be operating properly before any planting operations commence.

3.11 COMPLETION CLEANING:

Upon completion of the work, Contractor shall smooth all ground surfaces; remove excess materials, rubbish, debris, etc.; sweep adjacent streets, curbs, gutters, walkways, and trails; and remove construction equipment from the premises.

END OF SECTION

SECTION 02444 - CHAIN LINK FENCING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

The provisions of *The "Greenbook" Standard Specifications for Public Works Construction* shall apply except as modified herein.

1.02 SCOPE OF WORK:

Work of this section includes that which is necessary for and incidental to completing all chain link fence work as indicated on the drawings and designated herein as follows.

- A. Fence fabric and posts
- B. Excavation for post bases
- C. Concrete anchorage for posts
- D. Gates and related hardware

1.03 REFERENCE STANDARDS:

- A. Chain Link Fence Manufacturers Institute (CLFMI) - Voluntary Standard for Chain Link Fence Installation.
- B. ASTM A120 - Hot Dip Zinc Coated (Galvanized) Welded and Seamless Steel Pipe.
- C. ASTM A123 - zinc (Hot-Galvanized Coatings on Products Fabricated from Rolled, Pressed and Forged Steel Shapes, Bars, and Strip).

1.04 SHOP DRAWINGS AND PRODUCT DATA:

- A. Submit shop drawings and product data at the preconstruction conference.
- B. Clearly indicate plan layout, grid, spacing of components, accessories, fitments, and anchorage.

PART 2 - MATERIALS

2.01 GENERAL:

All materials for chain link fencing shall conform with Section 206-6 of the latest edition of *The "Greenbook" Standard Specifications for Public Works Construction* except as modified herein.

2.02 COMPONENTS:

The base material for the manufacture of steel pipe used for posts, braces, top rails, and gate frames shall conform to the requirements of ASTM F1083, Schedule 40.

- A. Line Posts: 2.38 inch roll formed sections.
- B. Corner and Terminal Posts: 2.88 inch diameter roll formed sections.
- C. Gate Posts: 4.5 inch diameter roll formed sections.
- D. Top and Brace Rail: 1.66 inch diameter, plan end, sleeve coupled. Roll formed sections.
- E. Gate Frame: 1.90 inch diameter
- F. Caps: Cast or pressed steel or malleable iron, hot dip galvanized, sized to post dimension, set screw retained.
- G. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings, steel galvanized.
- H. Fabric: 2 inches diamond mesh, interwoven, 9 gauge top selvage knuckle end closed, bottom selvage knuckle end closed.
- I. Bottom tension wire: 6-gauge galvanized coil spring wire.
- J. Gate hardware: Gate center rest, 2 piece drop latch, chain gate holdbrace, gate hinge, 180 degree male and female, fork latch and latch catch, and drop bolt.
- K. Fabric Ties: 11 gauge galvanized steel.
- L. Tension Bars: Galvanized high carbon steel bars not smaller than 3/16" x 3/4".
- M. Post Anchorage Concrete: Class 470-B-2000 in accordance with the Standard Specifications.
- N. Pole Posts: 4 inch diameter every 100'

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. Install all posts, all rails, and fabric to provide a rigid structure per AGENCY standards. Use manufacturer's standard fittings, fasteners, and hardware.
- B. Install posts plumb, set in concrete footings.
- C. Connect rails to posts to form continuous bracing.
- D. Fasten fabric to top rails and braces with wire ties maximum 12 inches on center.

- E. Attach fabric to end, corner, and sides with tension bars and tension bar clips.
- F. Stretch fabric between posts and rails.
- G. Install gates using fabric to match fence. Install 3 hinges per leaf, latch, catches, drop bolt, foot bolts and sockets, torsion spring retainer, retainer and locking clamp.
- H. Provide concrete center rest and drop bolt retainers at center of double gate openings.
- I. Contractor to provide a set of locks for each gate conforming to AGENCY standards.

3.02 CLOSEOUT:

- A. Upon completion of work of this section, the Contractor shall remove all equipment, excess material, and waste products from the site.
- B. Provide a one (1) year warranty.

END OF SECTION

SECTION 02445 - TEMPORARY CHAIN LINK FENCING

1.01 TEMPORARY FENCING:

Install a 6' tall (min.) temporary construction fence prior to beginning any site work, at the perimeter of active work. The fence shall be chain link (new or used), free of openings or breaks in the fabric, with fence posts at 10' O/C maximum. Fencing shall incorporate green "tennis court" windscreen material, securely fastened to top and bottom of chain link fabric, for the entire secured perimeter of the fence line. The fence shall be maintained in place throughout the construction phase period through to the end of the ninety (90) day landscape maintenance period. Install "No Trespassing" signs minimum 150' o.c., with wording presented in both English and Spanish. The temporary fence shall be removed prior to final inspection/project acceptance at the end of the maintenance period.

END OF SECTION 02445

SECTION 02470 - SITE FURNISHINGS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

The provisions of *The "Greenbook" Standard Specifications for Public Works Construction* shall also apply to this section.

1.02 SCOPE OF WORK:

The work included in this section generally consists of providing all labor, equipment and materials necessary to install all site furnishings complete as shown on the plans and as described herein.

1.03 SUBMITTALS:

- A. Contractor shall submit a written work schedule and cost breakdown for the various elements of the work at the preconstruction conference. Contractor shall also submit a complete list of materials along with manufacturers catalog data for all materials proposed for use in the work as a substitute for those specified herein.
- B. Manufacturer's Product Data: Submit six (6) copies of manufacturer's literature for each item of site furnishings.
- C. Submit suppliers certificates attesting that the materials furnished will meet specifications.

1.04 DELIVERY, STORAGE AND HANDLING:

Contractor assumes all responsibility for storage of all materials relative to this project. AGENCY assumes no liability for losses or damages from any cause as a result of such storage.

1.05 JOB CONDITIONS - PROTECTION:

After slabs are poured and site furnishings are installed, all damage to surrounding irrigation system shall be repaired by the contractor at the contractor's expense. All trees and shrubs in and around the project site shall be protected by the contractor and, if damaged, replaced at the contractor's expense. This provision is in effect until acceptance by the AGENCY of the complete project.

1.06 LOCATION INSPECTION:

No equipment, apparatus or foundations for same shall be placed until location stakes have been inspected and accepted by the PA.

1.07 GUARANTEE & LIABILITY INSURANCES:

- A. Manufacturer shall guarantee all materials and workmanship for a period of one (1) year exclusive of vandalism. Manufacturer will be required to provide product liability

insurance coverage in the minimum amounts of \$1,000,000.00 per incident.

The manufacturer will be required to provide complete installation drawings including specifications and a replacement parts list for all products.

- B. Contractor shall provide a written guarantee on his firm's letterhead for all materials and workmanship for a period of one (1) year exclusive of vandalism. Written guarantee shall be submitted to the AGENCY at the final inspection prior to final acceptance of the work.

PART 2 - PRODUCTS

2.01 LIGHTING:

Shall be Cree 'OSQ' Series LED Area/Flood Luminaire – Large. Pole to be 401-4011-20-T2-MBC-TMB. Floor light to be OSQ-A-AA-60D-U-40K-UL-BZ.

2.02 PICNIC SHELTER:

Shall be Polygon 'HXE' 24' picnic shelter with multi-rib roof and round K10 columns. Roof color to be 'Tudor Brown'. Frame color to be 'Bumper Black.' Available from Miracle Playground Sales (800)264-7225.

2.03 PICNIC TABLES:

Shall be 6' 'Multi-Pedestal Table' and 8' ADA 'Multi-Pedestal Table, in-ground mount. Color to be black (all parts). Available from Diversified Metal Fabricators, Inc. (800)356-7248.

PART 3 - EXECUTION

3.01 LAYOUT:

Contractor shall stake/mark locations for all slabs and foundations and shall obtain the approval of their location from AGENCY representative prior to commencing any digging. Locations shall be adjusted to provide minimum clear distances required from all edges of slabs, trees, irrigation heads, or other obstructions.

3.02 FURNITURE INSTALLATION:

- A. All site furnishings shall be installed with vandal-proof hardware or made vandal-proof (deforming or peening).
- B. Block outs for "after slab installation" will not be allowed.

3.03 CLEAN-UP:

Contractor shall clean up and legally dispose of all unused materials, excess soil, and debris at

regular intervals throughout the duration of the work, and as directed by the AGENCY representative.

3.04 PROTECTION OF EXISTING IMPROVEMENTS:

Contractor shall protect all existing improvements from damage.

END OF SECTION

SECTION 02480 - PLANTING

PART 1 - GENERAL

1.01 SCOPE OF WORK:

The work required is indicated on the drawings and includes, but is not necessarily limited to: soil preparation; finish grading; planting trees; guying and staking trees; planting shrubs and ground cover; soil erosion control; maintenance; plant establishment period; guarantees; and replacement.

1.02 RELATED WORK SPECIFIED ELSEWHERE:

Sport Field Turf Grass Fine Grading, Soil Preparation & Planting

Section 02920

1.03 GUARANTEE:

- A. All trees installed under the contract shall be guaranteed against any and all poor, inadequate or inferior materials and/or workmanship for a period of one (1) year.
- B. During the guarantee period, any material found to be dead, missing, or in poor condition shall be replaced by the Contractor within ten (10) days of written notification. The AGENCY representative shall be the sole judge as to the condition of the material.
- C. Replacement shall be made in accordance with these specifications and the plans.
- D. Material and labor involved in replacing plant material shall be provided by the Contractor at no additional cost to the AGENCY.

1.04 INSPECTIONS:

Inspections will be required. The Contractor shall contact the AGENCY representative at least 48 hours (2 working days) in advance of an anticipated inspection. An inspection will be required at each of the steps listed below:

- A. Upon completion of fine grading, and prior to commencement of soil preparation, for acceptance of fine grading work and taking of soils samples.
- B. Inspection of completed finish grading work per this section following soil amendment work.
- C. When trees are spotted for planting, but before planting holes are excavated.
- D. When planting and all other indicated or specified work has been completed.
- E. During application of pre-emergent chemical.
- F. At start of plant establishment and maintenance period.

- G. At the end of the plant establishment period, concurrent with final acceptance of the project for maintenance by the AGENCY. This acceptance for maintenance will be confirmed in writing by the PA.

1.05 SOILS TEST:

Contractor shall notify the PA upon completion of fine grading and prior to commencement of soil preparation work. The Contractor will obtain agronomic soils tests for all planting areas after completion of fine grading and prior to start of soil preparation work. Tests will be performed by AGENCY approved agronomic soils testing laboratory and will include a fertility and suitability analysis with written recommendations for soil preparation, planting backfill mix, auger hole requirements, and post plant fertilization program. The soils report recommendations shall take precedence over the minimum amendment and shall be approved by the PA PRIOR to planting in writing, and fertilizer application rates specified herein only when they exceed the specified minimums. A copy of the soils report shall be submitted to the AGENCY representative for approval.

1.06 SUBMITTALS:

- A. The following written certifications are required to be submitted to the PA upon delivery of the respective materials to the job site:
- Total Quantity of commercial fertilizers by type
 - Total Quantity of soil amendments and conditioners by type
 - Total Quantity of mulch
 - Total Quantity of iron sulphate
- B. All bagged products shall stay on the site in a neat and orderly manner until the final approval by the PA.

PART 2 - MATERIALS

2.01 FERTILIZER, SOIL AMENDMENTS AND CONDITIONERS:

- A. Planting Tablets: Tightly compressed long-lasting, 12 month slow-release fertilizer tablets weighing 7 grams, and having an analysis of 12-8-8 derived from the sources listed in the following guaranteed analysis:

GUARANTEED ANALYSIS:

Total Nitrogen(N)	12%
Derived from urea formaldehyde	
7.0% water soluble nitrogen	
13.0% water insoluble nitrogen	
Available Phosphoric Acid (P ₂ O ₅)	8%
Derived from triple super phosphate	

Soluble Potash (K ₂ O)	8%
Combined Sulfur (S)	3.5%
Derived from ferrous and potassium sulphates	
Iron (expressed as elemental Fe)	2.0%
Derived from ferrous sulphate	

- B. Commercial fertilizer shall bear the manufacturer's guaranteed statement of analysis and shall meet the following minimum requirements: 14% nitrogen, 7% phosphoric acid, 7% potash with 30% humus and 6% humic acids.

- C. Organic Soil Amendment:

Shall be nitrogen fortified redwood, cedar, or fir sawdust and shall contain minimum 1% available nitrogen. Material containing manure, pine, or other material will not be accepted.

- D. Mulch:

Shall be nitrogen fortified redwood, cedar or fir shavings and shall contain minimum 1% available nitrogen.

- E. Soil Conditioner/Fertilizer:

Shall be composted higher plant form life below the fibrous stage to support bacterial culture analysis: 5% nitrogen, 3% phosphorus, 1% potash, 50% humus, 15% humic acid, with bacteria included and 1% soil penetrant. (Gro-Power Plus) Available through Gro-Power, Inc. (800) 473-1307.

- F. Soil Conditioners:

Inorganic conditioners shall be agricultural grade gypsum, soil sulfur and iron sulphate. Iron sulphate shall be ferric sulphate or ferrous sulphate in pelleted or granular form containing not less than 18.5% iron, expressed as metallic iron, and shall be registered as an agricultural mineral with the State Department of Agriculture in compliance with Article 2 "Fertilizing Materials", Section 1030 of the Agriculture Code.

2.02 PLANTS:

- A. All plants shall be true to name, and one of each bundle or lot shall be tagged with the name and size of plants in accordance with the standards of practice recommended by the American Association of Nurserymen. The root condition of plants furnished in containers shall be determined by removal of earth from the roots of not less than two plants nor more than 2% of the total number of plants of each species or variety except when container-grown plants are from several different sources: in which case, the roots of not less than two plants of each species or variety from each source shall be checked by the AGENCY representative at his option. The selection of plants to be checked will be made by the AGENCY representative.

All plants rendered unsuitable for planting shall be considered as samples, and replacements shall be provided at no additional cost. In case the sample plants are found to be defective, the entire lot or lots of plants represented by the defective samples will be rejected.

- B. All trees and shrubs supplied by Contractor shall be of the specified standard height and diameter set by the American Standard for Nursery Stock. The height of the trees shall be measured from the root crown to the last division of the terminal leader and the diameter shall be measured six (6) inches above the crown roots. The trees shall stand erect without support.
- C. Flatted Plants: Ground cover plants and other flatted plants shall be grown and remain in the flats until transplanted at the site. The soil and spacing of the plants in the flat shall ensure the minimum disturbance of the root system at time of transplanting.
- D. Bare root stock shall conform to the American Nurseryman's Association standards. Minimum caliper shall be 2" diameter and minimum height shall be 12 feet.

2.03 BACKFILL MATERIAL:

- A. Topsoil shall be free from noxious weed seed and shall be of a loam characteristic, fertile and friable.
- B. Wood shavings shall be leached nitrogen fortified and shall be free of foreign matter.
- C. Soil used for backfill of planting pits shall be enriched using the following blend per cubic yard (agronomic soil test recommendations to be reviewed prior to soil mixing) and have written approval by the PA before planting.

60% site soil or approved import
40% wood shavings
17 lbs. soil condition/fertilizer (Gro-Power Plus)
1 lb. iron sulphate

All plant pits shall be backfilled with backfill mix as specified above.

- D. All soil backfill shall be bulk mixed, not individually mixed at each plant pit.

2.04 STAKES AND TIES:

- A. Tree stakes shall be 3" dia. x 10 foot long straight- grained copper naphthanate treated lodgepole pine. Stakes shall be free from knots, checks, splits, or disfigurements.
- B. Tree ties shall be "Twist Brace" supplied by V.I.T. Co., Escondido, California, (760) 480-6702. For 24" box trees, Model TB24.

2.05 HERBICIDE ERADICATION:

Gro-Safe as manufactured by Target Chemical Co. (714) 821-9020; or approved equal.

PART 3 - EXECUTION

3.01 LANDSCAPE GRADING:

The Contractor shall complete preliminary grading filling as needed or removing surplus dirt, removing rocks and debris over 1 inch in diameter within the top 2" of soil in flat and slope areas, and removing rocks over 2" in diameter within the top 6" of soil in areas with slopes less than 3:1. Bring all areas to be landscaped to finish grade. All areas shall slope to drain. Flow lines shall be established to existing road curbs and/or sidewalks as shown on the plans and as directed.

3.02 WEED CONTROL MEASURES:

- A. Upon completion of all fine grading work and prior to soil preparation, perform weed control measures as follows:
 - 1. Irrigate all areas designated to be planted for a minimum of 10 minutes per setting, two settings per day for seven days to germinate all weed seed possible.
 - 2. Apply a contact weed killer and allow sufficient time to obtain complete kill of all weeds germinated.
 - 3. Repeat step one above.

3.03 SOIL PREPARATION:

- A. All fine grading and mounding and all weed control measures shall be completed prior to soil preparation.
- B. This work shall not commence until the agronomic soils test has been completed. Should 30 calendar days elapse between completion of soil preparation and commencement of planting, all areas shall be prepared again.
- C. In planting areas with gradients less than 3:1, a layer of soil amendments shall be spread and rototilled into the soil to a minimum depth of 4 inches, or as recommended by the soils report, so that the soils shall be loose, friable, and free from all rocks, sticks, and other objects undesirable to planting.
- D. The following soil amendments shall be added per 1,000 square feet to all planting areas with gradients less than 3:1 (agronomic soil test recommendations shall take precedence where these minimum amounts are exceeded) and need written approval by the PA before planting.
 - 1. 3 cubic yards organic amendment.

2. 200 pounds soil conditioner/fertilizer (Gro-Power Plus)

All landscape areas shall be finish graded to "dress out", maintain, and/or reestablish grades and flow lines as approved prior to amending the soil. Finish grades will be inspected upon completion. Contractor shall not proceed with planting work until finish grades have been inspected and accepted by the PA.

3.04 FINISH GRADING:

After completion of all soil preparation work the Contractor shall finish grade all planting areas filling as needed or removing surplus dirt, removing rocks and debris over 1 inch in diameter, and floating to a smooth uniform grade. All areas shall slope to drain. Flow lines shall be established to existing road curbs and/or a sidewalk as shown on the plans and as directed.

3.05 EROSION CONTROL:

All slope areas exceeding 3:1 shall receive jute netting. Netting shall also be provided during the maintenance period, when and as directed by the Inspector, along flow lines and other locations where erosion is evident. Jute netting shall be installed loosely, up and down the slope. The installed netting shall fit the soil surface contour and shall be held in place by 9-inch long, 11-gage (minimum) steel wire staples driven vertically into the soil at approximately 24-inch spacing. Jute netting strips shall overlap along the sides at least 6 inches. Ends of strips shall be buried into the soil at least 6 inches. Lap all ends of rolls a minimum of 24".

3.06 PLANTING:

- A. Trees: Plant holes shall be dug to size as indicated in the drawings. Before trees are set in the holes, a water test should be made as follows:

All plant holes shall be filled to the brim with water and allowed to drain before any planting is done. If water does not drain out of hole within 24 hours, this fact must be brought to the attention of the PA so that corrections can be made. Correctional work shall be considered as an extra, at additional expense.

- B. Soil surrounding planting pit shall be in a friable condition and moist to a depth of 8".
- C. Backfill using specified soil mix to within 8" of finish grade. At this depth, place the plant fertilizer tablets Gro-Power planting tablets, 12-8-8, 7 grams each or equal. A minimum of 3 tablets for 1 gallon; 8 tablets for 5 gallons; 15 tablets for 15 gallons, and 22 tablets for a 24" box. Complete backfilling to finish grade.
- D. Trees shall be planted at such a depth that the crown roots bear the same relative position to finish grade as they did to the soils where they were grown. Backfill after planting shall be compacted carefully into place without injuring the roots of the tree or breaking up the ball of earth surrounding the roots.

3.07 GROUND COVER AND VINE PLANTING:

Soil preparation and fine grading shall be completed prior to ground cover planting.

Mulch and fertilize ground cover areas per Section 3.02, part D. of planting specifications.

All rooted ground cover and bare dirt areas are to be treated with a pre-emergent chemical (subject to approval by the PA prior to application). Chemicals are to be applied by a licensed Pest Control Agent. This treatment shall be applied at the following times during the contract: a) before planting, b) at beginning of plant establishment period, and c) at the end of plant establishment period. The AGENCY representative shall be given a minimum of 48 hours (2 working days) notice prior to each application. No chemicals shall be applied other than in the presence of the inspector.

Ground cover shall be planted below all shrubs and trees to within 12" of the shrub main stem unless otherwise noted on the plans.

Ground cover and vines shall be planted in moist soil and spaced as indicated on the plans.

Each plant shall be planted with its proportionate amount of flat soil to minimize root disturbance. Soil moisture shall be such that the soil does not crumble when removing plants.

Following planting, ground cover and vine areas shall be re-graded to restore smooth finish grade and to ensure proper surface drainage. A 2-inch (50 mm) layer of Type 1 mulch shall be spread over the planted areas. Watering shall begin immediately following mulching.

When necessary to prevent plant damage from pedestrian traffic during the initial growing stage, the Contractor shall erect temporary protective fencing to be removed at the end of the plant establishment period.

Vines shall be tied to walls, fences, etc., in the manner prescribed on the plans. Temporary staking shall be removed at the beginning of the plant establishment period.

3.08 TREE STAKING:

Stake trees as per planting details. No metal wire shall circle any part of any tree.

3.09 WATERING:

- A. It shall be the Contractor's responsibility to maintain a balanced watering program to ensure proper growth until final acceptance of the work.
- B. Immediately after planting, apply water to each tree, shrub or vine. Apply water in a moderate stream in the planting hole until the material about the roots is completely saturated from the bottom of the hole to the top of the ground.
- C. Apply water in sufficient quantities and as often as seasonal conditions require to keep the

planted areas moist at all times, well below the root system of plants.

D. Irrigation:

1. Contractor shall properly and completely maintain the irrigation system. A balanced water program shall be maintained to ensure proper growth until final acceptance of the work. Plants which cannot be watered efficiently with the irrigation system shall be watered by means of a hose.
2. All controllers are to have each station individually adjusted on a weekly basis. System shall be set considering the application rate each area is capable of receiving. The system shall operate on short intervals, with the cycle repeating at a later time to reduce runoff.

3.10 MAINTENANCE:

- A. All areas landscaped by Contractor under this contract shall be maintained by him for a minimum plant establishment period of not less than ninety (90) days from the date of written acceptance for start of the plant establishment period.
- B. Contractor shall maintain existing planted areas which are within the work limits of the contract as shown on the plans. This maintenance shall continue for the duration of the construction period. The contractor shall provide and allow access by AGENCY maintenance people into or through work limit areas for the purpose of normal maintenance of existing park areas remaining outside of the work limit areas.

3.11 START OF PLANT ESTABLISHMENT:

- A. Criteria for start of plant establishment period:
 1. The plant establishment period shall not start until all elements of the project that impact the landscape are completed in accordance with the contract documents. Projects will not be segmented into phases.
 2. Permanent Power to remote controllers shall be established.
 3. The plant establishment period for the project shall not begin until after the first mowing of all of the newly planted turf areas. New turf shall not be mowed until attaining a minimum height of 1-1/2 inches. Turf shall be maintained at a mowing height of 2 inches. Turf shall be rotary mowed minimum weekly.
 4. Written acceptance of the AGENCY representative must be obtained to the start of the plant establishment period.
 5. If the project maintenance fails to continuously meet standards required, the plant establishment period "day count" will be suspended and will not recommence until

Contractor has corrected all deficiencies.

3.12 MAINTENANCE TASKS:

A. General:

During the contract period provide all watering, weeding, fertilizing and cultivation, and spraying necessary to keep the plants and turf in a healthy growing condition and to keep the planted areas neat, edged, and attractive. All trees and shrubs planted under the contract shall be pinched and pruned as necessary to encourage new growth and to eliminate sucker growth. Old wilted flowers and dead foliage shall be immediately pinched or cut off. Do no tree pruning without the written approval of the PA.

B. Iron Chlorosis:

After planting and during the plant establishment period in the event that trees exhibit iron chlorosis symptoms, apply FE 138 Geigy or equivalent at manufacturer's recommended rates.

C. Replacement Plantings:

During the plant establishment period, should the appearance of any plant indicate weakness, that plant shall be replaced immediately with a new, healthy plant. At the end of the plant establishment period, all plant materials shall be in a healthy, growing condition and spaced as indicated on the plans.

D. Planting Establishment:

Any planting areas that do not show a prompt establishment of plant material shall be replanted at 10-day intervals until the plant material is established. If a good rate of growth has not been demonstrated within 30 days of first planting/ hydroseeding, the Contractor shall be responsible to determine the appropriate horticultural practices necessary to obtain good growth. The Contractor shall obtain agronomic soils testing of all areas not showing good growth and shall provide copies of the test results to the AGENCY representative to verify the appropriateness of all maintenance work performed. If additional soil amendments are needed, up to a maximum 25% beyond the amount specified, such amendments shall be provided by the Contractor at no additional cost to the AGENCY.

E. Grading and Drainage:

During the plant establishment period all flow lines shall be maintained to allow for free flow of surface water. Displaced material which interferes with drainage shall be removed and placed as directed. Low spots and pockets shall be graded to drain properly. Jute netting shall be installed at flow lines and other locations where erosion is evident, when directed by the inspector.

1. Damage to planting areas shall be repaired immediately and throughout the plant establishment period. Depressions caused by vehicles, bicycles, or foot traffic shall

be filled and leveled. Replant damaged areas.

2. All paved areas shall be washed and maintained in a neat and clean condition at all times.
3. Debris and trash shall be removed from the site weekly at a minimum.
4. All subsurface drains shall be periodically flushed with clear water to avoid build up of silt and debris. Keep all drain inlets clear of leaves, trash, and other debris.

F. Disease and Pest Control:

Throughout the plant establishment period, all plants shall be maintained in a disease and pest free condition. A licensed pest control operator shall be retained by the Contractor to recommend and apply all pesticides, herbicides, and fungicides. Exterminate gophers, moles, and all other rodents, and repair damage.

G. Trash:

Debris and trash shall be removed from the site weekly at a minimum. Coordinate with CR&R.

3.13 END OF PLANT ESTABLISHMENT PERIOD:

- (1) When the Contractor believes he has completed the plant establishment period and the entire project is ready for final acceptance, he shall request inspection of the project. The PA will inspect the project for final acceptance. Deficiencies noted during inspection shall extend the plant establishment period until all are corrected.
- (2) All planting areas shall show a good rate of growth and shall be well established "filled in" plantings free of voids. Bare areas will be unacceptable. Contractor shall provide sod or planting from flats as necessary to fill in all bare areas. Such sod or plantings shall be planted a minimum of 10 days prior to the end of the plant establishment period and shall have roots "knit-in" to the native soil.
- (3) Final acceptance shall occur only upon written acceptance of the project for maintenance by the PA.

3.14 CLEAN UP:

Upon completion of the work, the Contractor shall smooth all ground surfaces; remove excess materials, rubbish, debris, etc.; sweep adjacent streets, curbs, gutters, walkways, and trails; and remove construction equipment from the premises.

END OF SECTION

SECTION 02540 - RESILIENT SURFACING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Standard Specifications: The provisions of the Standard Specifications shall apply except as modified herein.

B. Reference Standards:

A Handbook for Public Playground Safety as prepared by the U.S. Consumer Product Safety Commission.

ASTM F1487-93 Standard Consumer Safety Performance Specifications for Public Use Playground Equipment.

The provisions of the Federal Consumer Products Safety Commission (CPSC) guidelines for impact attenuation under playground equipment.

The provisions of the Americans with Disabilities Act of 1990 for accessibility to play area equipment.

1.02 SCOPE: The Work of this Section shall consist of furnishing all labor, materials, equipment, appliances and services necessary for the execution and completion of all **Resilient Surfacing Work** as shown on the Plans and as described in the Specifications including, but not necessarily limited to, the following:

- Analysis of maximum fall-height for as-built play equipment;
- Design of resilient surfacing thickness;
- Excavation, grading and compaction of subgrade;
- Placement and compaction of aggregate base;
- Installation of resilient surfacing system;
- Coordination with Work of other Sections;
- Testing;
- Clean-up;
- Replacements, Repairs, Guarantees and Warranty Work.

1.03 QUALITY ASSURANCE: Prior to the start of any Work of this Section, Contractor shall arrange a meeting at the job site with the following representation:

Prime Contractor

Resilient Surfacing Installer

Riverside County Economic Development Agency(EDA) Projects Inspector

The purpose of this meeting is to verify the suitability of the site to accept Work of this Section and to assure a high quality installation. Surfacing installer shall have a minimum of three years experience in this type of work.

The resilient surfacing as installed shall meet or exceed the Consumer Product Safety Commission's guidelines for shock absorbency materials used under play structures, and shall comply with the provisions of the Americans with Disabilities Act of 1990 with respect to accessibility standards.

1.04 RELATED WORK:

Site Clear and Grub:

Section 02110

1.05 GUARANTEE: The resilient surfacing product manufacturer shall guarantee against defects in materials and workmanship for a minimum period of two (2) years, excluding acts of vandalism, nature or war.

1.06 SUBMITTALS:

A. Color Samples: Color samples of the resilient surfacing shall be submitted at the preconstruction meeting for the review and approval of the PROJECT MANAGER OF EDA

B. Shop Drawings: Per sub-section **3.02 ANALYSIS AND DESIGN**, following herein, Shop Drawings shall be submitted to PROJECT MANAGER OF EDA for review, together with a written report to document compliance with the CPSC Guidelines, all prior to installation of the product.

C. Maintenance Manuals: At the end of the project, but prior to final acceptance, Manufacturers product description, warranty, installation instructions, Shop Drawings, recommendations for resilient surfacing maintenance, etc., shall be submitted together in a loose leaf binder format for City review, approval, and use in maintaining the surfacing.

D. Documentation of Inspection and Certification: Per sub-section **1.07 INSPECTIONS & TESTING**, following herein, documentation of inspection and certification shall be submitted no later than the start of the Final Acceptance Inspection.

1.07 INSPECTIONS & TESTING: Prior to Final Acceptance of the Project, inspection and certification shall be obtained from the surfacing manufacturer, surfacing installer, and play equipment manufacturer, and shall be provided to the PROJECT MANAGER OF EDA. The certifications shall attest to the adequate and proper installation of the finished product.

PART 2 - MATERIALS

2.01 AGGREGATE BASE: Shall be crushed aggregate base conforming with Standard Specifications Section 200-2.2. Crushed Aggregate Base.

2.02 QUALITY ASSURANCE: Products used in the Work of this Section shall be produced by manufacturers regularly engaged in the manufacture of similar items with a history of successful production acceptable to the EDA Representative.

2.03 RESILIENT SURFACING: The resilient surfacing shall be "TotTurf® TPV" as manufactured by Robertson Recreational Surfaces, 2414 W 12th St. Suite 5, Tempe, Arizona 85281, (800) 858-0519. The surfacing shall be a poured-in-place type of safety surface for use as a resilient, shock absorbing cushion under playground equipment. It shall be porous throughout, entirely seamless, and create a tight seal around the play equipment. The surfacing shall consist of a two (2) layer system with a soft cushion layer covered by a durable, weather resistant, colored wearing layer as follows:

- A. Cushion Course: Two (2) types of shredded tire buffing held in place by a polyurethane binder applied to 100% of the particles. 50% Particle type one: 1 mm - 4 mm cubical; Particle type two: .5 mm - 2 mm in thickness by .25 cm - 2 cm in length strand. The cushion course shall be a precise three component part mixture of these type SBR Rubbers and the polyurethane binder with a minimum installed thickness of 1 5/8" or greater as necessary to achieve the safety standards defined by the Federal Consumer Product Safety Commission guidelines.
- B. Wearing Course: EPDM Rubber granules, 1 mm - 4 mm chipped, held in place by a polyurethane binder applied to 100% of the granules. The wearing course shall be a precise two component part mixture of the full color EPDM rubber granules and the polyurethane binder with a minimum installed thickness of 3/8".
- C. Weed Control Blanket: Shall be a polypropylene fabric as provided by the resilient surfacing manufacturer.
- D. Quality Control: In order to provide consistent quality control during installation, all component parts (ingredients of the surfacing mix) are to be pre-measured and sealed in individual containers for delivery to the job site.

2.04 COLOR:

Surface color shall be placed per construction plan and approved by the EDA representative.

OR area: TOTTURF 'ORANGE CUSTOM BLEND', blend to be 50% MODEL #RH50 'STANDARD ORANGE' + 50% 'BLACK'

YE area: TOTTURF 'BRIGHT YELLOW CUSTOM BLEND', blend to be 50% MODEL #RH41 'BRIGHT YELLOW' + 50% 'BLACK'

BL area: TOTTURF 'BLUE CUSTOM BLEND', blend to be 50% MODEL #RH22 'SKY BLUE' + 50% 'BLACK'

PART 3 - EXECUTION

3.01 QUALIFICATIONS OF INSTALLERS: Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

- 3.02 ANALYSIS AND DESIGN: Work of this Section shall not commence until after the installation of all concrete curbs. The Resilient Surfacing installer shall analyze the maximum potential fall-heights presented by the existing equipment and shall design the thickness of the resilient surfacing system based upon the current conditions, to ensure the shock absorbency of the system meets or exceeds the standards for play and surfaces as defined by the Federal Consumer Product Safety Commission (CPSC) guidelines. Thickness of the resilient surfacing may be varied within the play area as a function of the various maximum potential fall-heights. Thickness of cushion course shall be a minimum of 1 5/8". A written report to document the analysis and design of the resilient surfacing, together with Shop Drawings identifying the limits of the various design thickness shall be prepared by the resilient surfacing installer and submitted to the EDA Representative.
- 3.03 SUBGRADE PREPARATION BASE: After analysis and design of the resilient surfacing thickness, Contractor shall prepare the play area subgrade in accordance with Section **301-1.2 Preparation of Subgrade** of the Standard Specifications as described for installation of untreated base. Compact to 90% relative compaction, tolerance to be a variance of not more than 1/2" from the grades specified by the analysis and design.
- 3.04 INSTALLATION OF AGGREGATE BASE: Aggregate base shall be installed in accordance with Standard Specification Section **301-2 UNTREATED BASE** to a minimum depth of 3", and compacted to a minimum relative compaction of 90 percent.
- 3.05 FINISH OF SURFACING: The wearing course shall be hand troweled to produce an even, uniform surface. Surface "Sheet" drainage shall be provided as shown on the Plans. The surfacing installer shall adhere to manufacturer's instructions. The manufacturer's representative shall be present during installation and shall provide the EDA Representative with written certification that the product has been installed in accordance with the manufacturer's recommendations.
- 3.06 CLEAN UP: After completion of the Work of this Section, remove all debris; clean-up all spills of material from surfaces; and keep the play area surfacing in a clean condition until accepted by the EDA Representative.

END OF SECTION

SECTION 02920 - SPORT FIELD TURF GRASS FINE GRADING, SOIL PREPARATION & PLANTING

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. Ripping
- B. Fertilizer
- C. Soil Amendments
- D. Amending Process
- E. Amending Equipment
- F. Fine Grading
- G. Irrigation Maintenance

1.02 SUBMITTALS:

- A. Quality Control Submittals:
 - 1. Certificates: State, federal and other inspection certificates shall accompany invoice for all materials showing source or origin, Submit to the AGENCY representative prior to acceptance of materials.
 - 2. Soil and Leaf Analysis Report: Contractor shall be responsible for submitting soil and leaf samples per the following specifications 3 separate times:
 - A. The first immediately after soils have been placed and graded to sub grade (soil samples only). This soil testing will determine if the quantities of amendments will need to change due to the difference in the soils as first tested and after cuts and fills had been placed.
 - B. The second should occur 4 weeks after planting, (soil and leaf samples).
 - C. The third should occur 12 weeks after planting, (soil and leaf samples). After each soil and leaf sampling, contractor shall immediately provide and spread the fertilizers that the Turf Consultant recommends based on these analyses.

CONSTRUCTION IMPROVEMENTS: GOODHOPE PARK - 21565 STEELE PEAK DRIVE, PERRIS, CA 92570
RIVERSIDE COUNTY ECONOMIC DEVELOPMENT AGENCY
COMMUNITY WORKS DESIGN GROUP

REQUIRED SOIL TESTING AND AERATION SCHEDULING INTERVALS

TESTING COMPANY	Soil Test	Sample Size	Approximate Cost	After Soil has been placed and graded	After soil has been roto-tilled and laser graded	30 Days after sodding or seeding	60 Days after sodding	60 Days after seeding	90 Days after seeding	120 Days after seeding
SERVITECH LABS	PRZ Complete	2/3rds Qt	\$35.15	X	X	X	X	X	X	X
1816 E Wyatt Earp	PRZ Sieve	2/3rds Qt	\$44.10	X	X					
Dodge City, KS 67801	PRZ Plasticity	2/3rds Qt	\$60.00	X	X					
800-5577509	PRZ Leaf Analysis	Qt. Baggie	\$28.45			X	X	X	X	X
EARTHFORT LABS	PRZ Advanced	2 Cups	\$144.00		X		X	X		X
636 SW Western Blvd	Biology Package									
Corvallis, OR 97333										
541-257-2612										
Knife Aeration in 2 directions with Aerway							X	X		
aerator with 6" turf tines and greens roller										
at back or plug pulling in 2 directions with 4"										
tines followed by sweeping up the plugs.										

D. For the first and third sampling, contractor shall take thirty small samples from all over the fields. Mix the samples together and separate into three Quart size sample bags. Mark each bag with contractor's name and site name and location from which the sample was pulled (Soccer Field). Mark one bag PRZ Complete (+SAR & EC), the second PRZ Sieve and the third PRZ Plasticity. The samples should be pulled from 0 to 7.5" deep (do not go deeper than the soil was mixed). Also when leaf analyses are required above, contractor will need to use a pair of scissors to cut clippings from approximately the same areas that the plugs are pulled from. Mark these bags with contractor's name and site name location, PRZ Leaf Analyses. All samples shall be forwarded **overnight** (can take 7 days if not overnighted and work could be halted while we wait) by the contractor to SERVI-TECH LABORATORIES 1816 E. Wyatt Earp, Dodge City KS 67801, for testing to verify that all fertilizers and soil amendments specified have been incorporated. Contractor shall pay for all testing fees from the lab

3. All submittals for soil amendments, Compost, sand and fertilizers must be accompanied by a letter on contractor's company stationary listing exact quantities in gallons, lbs., tons, cubic yards or cubic feet. These quantities will be checked for accuracy before construction and with delivery tickets during construction. Contractor shall also show the square footages they are using for these calculations and the supplier (not manufacturer) for each of these Products. Sand submittal must include supplier, tons and inches of sand and the conversion factor tons per cubic yard.
4. Submittals shall include the listing of the make, model, and sub-Contractor of the Soil Renovation Machine (roto-tiller) that will be used for this process.

1.03 DELIVERY, STORAGE AND HANDLING:

- A. Fertilizer: Deliver inorganic or chemical fertilizer to site in original unopened containers bearing manufacturer's guaranteed chemical analysis, name, trade name, trademark and conformance to state law, bearing name and warranty of producer.
- B. Notify Representative of delivery schedule in advance so material can be inspected upon arrival at project site. Immediately remove unacceptable material from project site.

1.04 PROJECT/SITE CONDITION:

- A. General: Do not perform work when climate and existing site conditions will not provide satisfactory results.
- B. Vehicular accessibility on site shall be as directed by the AGENCY representative. Repair damage to prepared ground and surfaces caused by vehicular movement during work under this section to original condition at no additional cost to AGENCY.
- C. Perform soil preparation just prior to planting operations and in accordance with final planting schedule. Coordinate with irrigation system installation to avoid damage to work of one by the other.
- D. Utilities and Electrical lines for lighting and score board: Determine location of underground utilities (irrigation lines included) and perform work in a manner which will avoid damage, Hand excavate, as required.

PART 2 - PRODUCTS

- 2.01 All of the quantities of the products and soil amendments listed below have been specified just for this project based on preliminary soil testing and growing conditions at this site. Contractor should use these quantities for the purpose of bidding the project. The soil testing specified in this document will then be used to customize the quantities of each of these items.

All products, amendments, procedures and equipment listed below have been specified just for this project based on the specific soil conditions and growing conditions and have been submitted for testing to insure that they meet the specifications listed below and that they are compatible with the conditions of this site.

Any other products that are to be submitted as substitutes must be tested and approved pre-bid by the same laboratories and the results will be used by the soil consultant to determine if they meet the specifications based on technical results. Contractor must allow at least 10 days from the day he overnights the samples to the laboratory for the results and approval for substitution at least 2 weeks before the bid opening.

- 2.02 Organic Composted Soil Amendment: Compost must have the following characteristics:

- A. PH of less than 8.5
- B. Screened to 3/8" minus
- C. Soluble salts EC less than 3
- D. Carbon to nitrogen ratio 25/1 or less
- E. Organic content above 25%
- F. Shall be free of glass, metal and visible plastics
- G. Odor shall be soil-like (musty or moldy) not sour, ammonia -like or putrid

- H. Can have no nitrogenized wood product in it
- I. Quantities: Park Area
7 cubic yards/1,000 sq. ft.
- J. Approved Suppliers:
Green Earthology-Kevin-949-380-8301 or pre bid approved equal.

PART 3 - FERTIGATION SYSTEM

- A. Fertigation system shall be Solar Powered
- B. Shall have tanks buried underground
- C. Fertigation company shall install their equipment for an installation fee and then maintain the system with monthly visits including chemicals.
- D. Approved Fertigation Company- Ecofert-Lou-949-766-5800

3.01 FERTILIZER:

- A. Commercial Fertilizer:
 - 1. All of the fertilizers listed in the Pre-Plant fertilizers are based on the existing soil conditions before placement of the soils and are to be used for bid purposes. These quantities and products may change after the placed soils have been analyzed.
 - 2. Pre-Plant Fertilizer:
 - 1) Concentrated Growth Medium-All available- pH less than 8.5, 25%+ organic content, Salts EC less than 3, calcium Ca 10%+, Magnesium Mg 2%+, Iron Fe 2.5%+ Approved product -THI Concentrated Soil Conditioner-(no known equal)
Quantities: Park Areas:
13.44 cubic yards/acre
 - 2) Concentrated Potassium 0-0-50 or pre bid approved equal
Quantities: Park Areas
16 lbs. /1,000 sq. ft.
 - 3) Concentrated Gypsum 23% or pre bid approved equal
Quantities: Park Areas
110lbs. /1,000 sq. ft.
 - 4) Concentrated Nitrogen-THI Nitro or pre bid approved equal
Quantities: Park Areas
.5(1/2 gls.) /1,000 sq. ft.

- 5) All organic root growth hormone/bio-stimulant,
Approved product -THI Microbes Foods or pre bid approved equal
Quantities: Park Areas
2.58 gallons/per acre
 - 6) Sodium Leeching Aid
Quantities: Park Areas
Approved product -THI NaXIT or pre bid approval equal
20 gallons per acre during incorporation 1 gallon per acre per
month during grow in.
 - 7) Microbial Seed & Sod Inoculant
Approved product -THI Microbial Seed & Sod Inoculant
or pre bid approved equal
Quantities: Park Areas
1 quart per acre
 - 8) Concentrated Microbial Starter
Approved product -THI Microbial +Starter or pre bid approved
equal
Quantities: Park Areas
871.2 lbs. per acre.
3. Post- Plant Fertilizer
- 1) Urea 46% granule product to provide 3 lbs. per 1000 sq. ft. Of N over 60
day grow in period- Approved Product- U-FLEX 46%
Quantities: Park Areas
319 Lbs./1000 sq. ft. per month over 60 day grow in
 - 2) Microbial Seed & Sod Inoculant
Approved product -THI Microbial Seed & Sod Inoculant
or pre bid approved equal
Quantities: Park Areas 1 quart per acre
 - 3) Sodium Leeching Aid
Quantities: Park Areas
1 gallon per acre per month through fertigation during grow in.
Approved product -THI NaXIT or pre bid approved equal
 - 4) Approved fertilizer supplier- Winfield- Scott-720-201-4255 or pre bid
approved equal

3.02 LASER GRADING:

- A. Soccer field and surrounding areas shall be rough graded with a laser controlled grader.
This is not laser guided or laser surveyed or GPS guided but laser controlled on the
ground.

- B. All soccer field shall then have the subgrade and final grade laser graded with the laser controlled box scraper with turf tires set at its highest accuracy to achieve + or - .25" (inches).

3.03 ROTOTILLING:

- A. These areas will be roto-tilled at 8" in depth and will require the large and powerful roto-tiller specified later in this document. It shall be a minimum of 500 horsepower with a minimum of a 4' high by 8' wide tilling drum capable of 3-4 revolutions per second.
- B. Minimum of 150 arms
- C. Two passes in slightly different directions will be required.
- D. The specified tiller will create a 15-18% fluff which will need to be wheel rolled (tracked) after each tilling pass. This is a critical step in this process and can be done with a grader or wide roller with no vibratory.

3.04 TURF ESTABLISHMENT PERIOD - 90 days for seed OR AS NECESSARY FOR FULL GROW-IN:

- A. Prior to starting of the maintenance period on this site:
 - 1. Final inspection shall be the PA & the AGENCY.
 - 2. All turf shall be completely established and filled in and all other contract requirements shall be fulfilled.
 - 3. Any bare spots, light colored areas or low spots shall be fixed and re-seeded with like seed varieties.
 - 4. Submit written request to the Representative for acceptability of initiating first mowing.
 - 5. First mowing shall take place when new seed has reached a height of 1.25-1.5" inches and cut to 1".
 - 6. Each additional mowing shall be cut from 2" and cut to 1.25".
 - 7. If for any reason there are clippings visible on the surface, they shall be removed by the contractor. All other times, the clippings are to be left behind.
 - 8. Each additional mowing during the (90-120 day establishment period shall be done at 1.25" cut from 1.5", no less than 3 times per week. More frequent mowing may be done by contractor for even faster grow in if there is no price increase to the AGENCY. A log kept at the Maintenance office shall be filled in each time a maintenance function has been performed and must be signed each time by an employee of the AGENCY who has checked the work and the contractor's employee performing the function. If no one from the AGENCY is present at the time contractor fills in the log, a cell phone call to the designated AGENCY representative will alert them to stop by the site to verify and then sign.

3.05 HERBICIDE:

Contractor shall maintain the entire site weed control during the grow-in period. All herbicides shall be approved before applying to insure that they don't retard germination or establishment of the turf. In some cases this could mean hand removal of weeds at critical times during the germination or establishment periods.

PART 4 - EXECUTION

4.01 EXAMINATION:

- A. General: Verify that existing site conditions are as specified and indicated before beginning work under this section.
 - 1. Damaged Earth: Inspect to verify that earth rendered unfit to receive planting due to concrete water, mortar, limewater or any other contaminant dumped on it has been removed and replaced with clean earth from a source approved by the AGENCY representative.
- B. Unsatisfactory Conditions: Report in writing to the AGENCY representative.
- C. Acceptance: Beginning of installation means acceptance of existing conditions by installer and AGENCY representative.

4.02 PREPARATION:

- A. Protection:
 - 1. Contractor is to locate sewer, water, irrigation, gas, electric, phone and other pipelines or conduits and equipment prior to commencing work.
 - 2. Contractor shall be responsible for proper repair to landscape, utilities, pavements and other site improvements damaged by operations under this section.
 - 3. Pay for repairs made by contractor(s) designated by the AGENCY.
- B. Surface Grade: Remove all weeds, debris and rocks larger than 3/4". Dispose of accumulated debris at direction of the AGENCY Representative.
- C. Runoff: Take measures and furnish equipment and labor necessary to control the flow, drainage, and accumulation of water to run off the grounds as is intended by the grades.
- D. Erosion Control: Take measures and furnish equipment and labor necessary to control and prevent soil erosion, blowing soil and accumulation of wind-deposited material on the site throughout duration of work.

4.03 INSTALLATION:

- A. Irrigation

Irrigation system installation must be inspected and approved by a representative of the AGENCY or the PA prior to the backfill of the trenched area and proceeding to the next.

B. Schedule of required installation equipment:

1. Crawling soil mixing machine capable of roto-tilling a minimum of 18" deep at 3-4 revolutions per second.
 - a. CMI Machines, Caterpillar Road renovators, with minimum of 500 Hp & self-propelled – Griffin Soil Stabilization- Bill Griffin-925-862-2260 or pre-bid equal.
2. Dry spreader for spreading bagged fertilizer material (can be sling type or drop type- 1000 lbs. or larger).
3. Boom sprayer for spraying liquid fertilizers-14-20ft. Boom and 150 gallons plus capacity.
4. Speed dresser that holds 6 cubic yards of material or 9 tons, is an 8 ft. wide drop spreader and it can spread 90 tons per hour or 900 tons per day. Nearly dust free-GreenOne Industries- Leroy-303-598-6109
5. Dual plane laser controlled (not GPS, not laser guided, not laser surveyed) road grader for sub grading and final grading and laser controlled (not laser guided or laser surveyed) box scraper for last final grading and grading around heads after they have been brought to the surface.
6. Six to ten foot rotary mower steam cleaned to prevent infestation from previous mowings with blades kept sharpened for mowing all turf areas 3 times per week during the 90 day establishment period. Must be mowed slow enough to prevent leaf tearing on the tips of the blades.
7. All Equipment used for any of the tasks involved in the completion of this project must have wide turf tires, no lugged tires (Ag) allowed.
8. Six foot 3 point roto-tiller for turning under the amendments field by field to prevent them from blowing away before the approved rototiller above can be brought in. Cannot be used to replace the above approved roto-tiller for roto tilling everything 8" deep before final laser grading!

C. Soil Amendment

1. Limit preparation to areas which will be planted promptly after preparation. The following order shall be followed. As each field has all of the amendments applied to the top, the small roto tiller specified above shall be used to till under the amendments to keep the amendments from blowing away until the large roto-tiller can be brought in to till all the fields in one visit.
2. Order of Amending:
 - A. Park Areas :
 - a) Install main and lateral irrigation lines and valves at 24" and 18" below final grade on sports fields and slopes. A T should be installed wherever a swing joint will occur and these should be capped and a 1/4" hole drilled in it pointing upward. As the irrigation zones are turned on one by

one, they will make a wet spot at the surface to aid in installation of the swing joints later. For a backup plan it is a good idea to survey these swing joint caps to aid in finding them later in case of problems.

- b) Demo soil and use Bleckavator to break up clods
- c) Laser grade the field to final grade
- d) Spread the approved compost evenly over the fields at the rate of 7 cubic yards per 1,000 sq. ft.
- e) Spread the dry Concentrated Soil Conditioner evenly over the fields at the rate of 13.44 cubic yards per acre.
- f) Mix the Microbes Food with enough water to apply evenly over the areas at the rate of 2.58 gallons per acre.
- g) Mix the Microbial Sod & Seed Inoculant with enough water to apply evenly over the areas at the rate of 1 qt. per acre.
- h) Mix NaXIT with enough water to apply evenly over the areas at the rate of 20 gallons per acre.
- i) Spread the liquid Nitrogen THI Nitro evenly over area at the rate of ½ gl. per 1,000 sq. ft.
- j) Spread the Dry Microbial Starter evenly over the areas at the rate of 871.2 lbs. per acre.
- k) Spread the dry Gypsum evenly over the areas at the rate of 110 lbs. per 1,000 sq. ft.
- l) Spread the dry potassium evenly over the areas at the rate of 16 lbs. per 1,000 sq. ft.
- m) Roto till, while root-zone is dry, with the large roto tillers to a depth of 8" on the park areas. We must wheel roll with the roto tiller's 24" wide tires which are the fastest and best way to do this however a Caterpillar wide steel wheeled roller can also be used with the vibratory turned off.
- n) Roto till dry again pulling the rotor ½" off the bottom on the second pass to prevent picking up additional waste soil underneath and to insure a very good mix and no clay balls, followed again by wheel rolling.
- o) Laser grade again to final grade, finishing with the box scraper at highest accuracy and certify with outside surveyor.
- p) At this point no trucks of any kind can go on the just graded areas, especially water trucks used to settle dust or these fields will get compacted and will have a direct effect on the grow-in process. Even the

hydro-seed truck for the slopes should work from the rim of the pit rather than on the fields. Only golf carts and turf tired vehicles are allowed on the fields. The fields will now be at 85-86% compaction.

- q) Bring up the irrigation heads on the field areas by turning on the system zone by zone to locate the exact spot where the swing joint will be attached. The contractor must place two separate tarps close to the two-foot hole and pile the good root-zone material on one tarp and the 8" of fill material on the other putting the fill back in the hole first and the root-zone material in last. These materials must be dry tamped in so the swing joint can't come loose over time.
- r) Test the irrigation system and fertigation system and correct any problems before sodding.
- s) Spray the liquid Microbes Seed & Sod Inoculant at the rate of 1 quart per acre evenly over the adjacent warm up areas. This is a seed germinator, root growth hormone and a bio-stimulant and can be added to the hydro-seeded tank if need be.
- t) We must spread 1 pound of Nitrogen per 1,000 square feet every 21 days (95lbs./ 1,000 sq. ft. per month during grow in) and make sure that the turf is mowed a minimum of 3 times a week both for the 60 - 120 day grow in period.

4.04 NOTIFICATION AND INSPECTION:

- A. Inspection: Provide notice to the AGENCY representative requesting inspection at least 7 days prior to the anticipated date of completion.
- B. Deficiencies: AGENCY representative will specify deficiencies to Contractor who shall make satisfactory adjustments and shall again notify the AGENCY representative for final inspection.

4.05 CLEANING:

- A. General: Remove debris and excess materials from site. Clean out drainage inlet structures to their point of discharge. Clean paved and finished surfaces soiled as a result of work under this section, in accordance with direction given by the AGENCY representative.

4.06 PROTECTION:

- A. General: Provide and install barriers as required and as directed by the AGENCY representative to protect completed areas against damage from pedestrian and vehicular traffic until acceptance by the AGENCY. Contractor is not responsible for malicious destruction caused by others.

4.07 WARRANTY:

- A. Contractor to warrant for a period of two years that puddling, sinking or caving directly due to earthwork operations does not occur.

PART 5 - LANDSCAPE MAINTENANCE

5.01 SUMMARY:

- A. Furnish all labor, materials, facilities, transportation and services to complete all landscape maintenance and related work as shown on the Drawings and specified herein.
- B. Scope of work:

The general extent of landscape maintenance can include, but may not be limited to the following:
 - 1. Turf areas
 - 2. Irrigation systems
 - 3. General site clean-up

5.02 REFERENCES AND REGULATORY REQUIREMENTS:

- A. State of California Department of Transportation Standard Specifications, Current edition.

5.03 QUALITY ASSURANCE:

- A. Control of work: Comply with Section 5 of the Standard Specifications.
- B. Control of materials: Comply with Section 6 of the Standard Specifications.
- C. The Maintenance Contractor shall be experienced in horticulture and landscape maintenance, practices and techniques, and shall provide sufficient number of workers with adequate equipment to perform the work during the Landscape Maintenance Period.

5.04 MAINTENANCE PERIOD

- A. Sports Field grow-in period shall be a minimum of 90 calendar days.
- B. Continuously maintain the entire project area during the progress of the work, during the specified Landscape Maintenance Period or until Final Acceptance of the project by the AGENCY representative.
- C. Landscape Maintenance Period shall not start until all elements of construction, planting and irrigation for the entire project are in accordance with Contract Documents. A prime requirement is that all turf areas shall show an even, healthy stand of "sod-like" turf which shall have been mown twice. If such criterion is met to the satisfaction of the AGENCY representative, a written notification shall be issued to establish the effective

beginning date of Landscape Maintenance Period. Additionally, all elements contained on the Pre-maintenance Punch-list shall have been completed to the satisfaction of the AGENCY representative.

- D. Any day of improper maintenance, as determined by the AGENCY representative, shall not be credited as an acceptable Landscape Maintenance Period day. The Landscape Maintenance Period shall be extended on a day-for-day basis should this occur until proper maintenance, as determined by the AGENCY representative, is being performed.
- E. Contractor shall secure the project site against trespass, vandalism or theft during the Landscape Maintenance Period subject to the discretion of the AGENCY representative.

5.05 GUARANTEE:

- A. All work executed under this section shall be guaranteed against any and all poor, inadequate or inferior materials and/or workmanship, as determined by the AGENCY representative, for the entire Landscape Maintenance Period and for a period of one year after Final Acceptance of project.
- B. The contractor shall install all replacement material in conformance with the Contract Documents.

5.06 FINAL ACCEPTANCE:

- A. Upon completion of all project work, including Landscape Maintenance Period, the AGENCY representative will, upon written request from the contractor (4 working day minimum notice), make an observation to determine conformance with the Contract Documents.
- B. If, at the final project observation, work is found at variance with the Contract Documents, or is otherwise unacceptable, the AGENCY representative shall issue a punch-list of items requiring attention to the contractor. The contractor shall repair, replace or otherwise correct all non-compliant work, continue Landscape Maintenance Period, and make another written request to the AGENCY representative to verify punch-list completion. If punch-list is found to be incomplete, or if site is still found to be unacceptable, the contractor shall be back-charged as necessary for all additional observations required to issue Final Acceptance. All replacement materials and installations shall be in accordance with the Contract Documents. Remove rejected work and materials immediately from project. Prior to Final Acceptance, contractor shall provide the AGENCY Representative with all Record Drawings and written Guaranty Statements in accordance with the Contract Documents.

PART 6 - PRODUCTS

6.01 MATERIALS:

- A. All materials used shall either conform to Specifications in other sections or shall otherwise be acceptable to the AGENCY Representative. The AGENCY representative shall be given a monthly record of all pre-approved herbicides, insecticides and disease control chemicals used.

6.02 MAINTENANCE:

- A. General: Proper maintenance, including watering, weeding, mowing, edging, fertilization, repairing and protection shall be required until entire project is finally accepted, but in any event for a period of not less than the specified Landscape Grow-in Period.
- B. Weeding: Soccer field shall be kept free of weeds at all times. Control new weed growth with pre-approved pre-emergent herbicides. If weeds develop, use legally approved herbicides.
 - 1. No herbicide shall be used without the AGENCY representative prior consent. Use only herbicides in accordance with manufacturer's recommendations. If selective herbicides are used, extreme caution shall be observed so as not to damage any other plants. Spraying shall be done only under windless conditions.
 - 2. Disease and Pest Control: Disease and insect damage shall be controlled by the use of fungicides and insecticides, subject to the prior consent of the AGENCY representative. Mole and gopher mitigation shall be accomplished using legal means other than poison baits.
- C. Protection: The contractor shall maintain protection of the soccer field until Final Acceptance. Damaged areas shall be repaired or replaced at the contractor's expense. Install a temporary maintenance fence (4' blaze orange with steel driven stakes or acceptable equal) around all turf areas for the entire length of Landscape Maintenance Period.
- D. Trash: Remove trash in all project areas plus adjacent pedestrian walkways and parking areas.
- E. Replacement: Refer to the Guaranty portion of this Section.
- F. Fertilizing: Immediately after completion of planting, fertilize all turf planting areas with specified maintenance fertilizer at rates specified to be applied until the end of specified Landscape grow-in Period.

6.03 TURF MAINTENANCE:

- A. Current cultural management practices may be modified in accordance with tissue test results or environmental conditions. Fertilizer composition, rate, and/or source may be adjusted based on current soil and tissue test results and existing environmental conditions.
- B. The following list represents the minimum required data that must be recorded in a field operations log:
 - 1. Chemical application logs – All labels, application rates, equipment used to apply chemicals shall be kept in the maintenance log. Chemicals shall include all fertilizers, bio-stimulants, growth regulators, and pesticides.

2. All cultural maintenance activities such as mowing, verification, topdressing, sample collection and seeding shall be recorded.
- C. Irrigation applications – Any use of the irrigation system should be documented as to zones used, duration of application, and any problems with coverage or system components.
- D. System repair logs for each system must be maintained. Record replaced or repaired items such as irrigation heads and valves, or any drainage components in the appropriate system repair log.
- E. The AGENCY will not assume maintenance of the turf until after the dates specified and after the turf has been inspected and approved by the AGENCY representative. The Contractor shall be responsible for maintenance.
- F. The Contractor shall be responsible for the performance and operation of the playing field system during the construction, grow-in periods and until final acceptance. The Contractor shall keep a technically qualified man on site and maintain adequate labor, equipment and supplies in reserve to immediately repair the system or components in the event of any deficiency or failure, during the interim maintenance period.
- G. Contractor shall provide all operations necessary to maintain the field through the date of acceptance. The following list of items represents the minimum operations necessary to maintain the fields. Maintenance items should, at the minimum, include:
 1. Mowing: Turf will be cut with a dedicated driven reel mower. Cutting height will be determined by environmental conditions, condition of sod, and time of year or activities. Turf height will be maintained using only sharp, equipment capable of cutting heights of 1.00 to 2.25 inches. The initial cutting or subsequent cuttings will remove not more than 1/3 of the grass leaf. Turf will be maintained to a neat appearance.
 2. Aerification: The turf aerification during the maintenance period after full turf establishment shall be on an as needed basis to reduce compaction. The turf will be slice aerified only to a depth not greater than 6" using slicing tines 5 inch grid pattern.
 3. Fertilization: Apply at rates specified through the grow-in.
 4. Weed and Pest Control: The Contractor is to maintain the turf free from disease and infestation. Required treatments will be made according to the needs of the field as determined by the AGENCY representative. Comply with applicable requirements of Federal, State, and Local laws, regulations and codes having jurisdiction over chemical treatments. The contractor is to apply suitable preventative or post infection fungicides to protect the quality of the turf. Special attention shall be required during the seedling establishment period for damping off diseases.

6.04 TURF ACCEPTANCE:

- A. The AGENCY representative will inspect the turf at the end of each day. Unacceptable turf will be removed and replaced the following workday. Daily approval does not guarantee final acceptance. Final acceptance will follow the AGENCY representative's final approval of the punch list and the following criteria:
1. Turf has rooted into the root zone mix to a depth of six inches (6") and has formed a mature sod mat.
 2. Turf is free of dead or bare spots in excess of 3 square inches.
 3. Soil and plant tissue fertility test results indicate all constituents are within target values.
 4. Maintenance log is complete and all equipment manuals and documentation delivered to the AGENCY.

6.05 IRRIGATION SYSTEM:

- A. System Observation: The contractor shall visually check all systems for proper operation on a weekly basis and make all necessary repairs. All equipment shall be adjusted as necessary for proper coverage and function.
- B. Controllers: Program automatic controllers for appropriate seasonal water requirements.

6.06 FIELD QUALITY CONTROL:

- A. Final Review: At, or near the end of specified Landscape Maintenance Period, the contractor shall make written request for a final review and the work shall be reviewed for conformance with the Construction Documents. If work is not accepted at time of review, a punch-list of items requiring attention will be issued to the contractor for correction. The Landscape Maintenance Period shall be extended at contractors sole cost as necessary. Upon completion of the punch-list the contractor shall again make written request for review. If, upon re-visiting the site, it is found that the punch-list has not been completed, the review shall end and the contractor shall be back-charged for all additional visits.
- B. All re-inspections required due to contractor not being prepared or non-conformance with the Construction Documents shall be back charged to the contractor.
- C. Final Acceptance: When work is found to be in conformance with the Contract Documents, subject to the discretion of the AGENCY representative, a statement of Final Acceptance shall be issued to the contractor.

END OF SECTION

SECTION 03010 - CONCRETE

PART 1 - GENERAL

1.01 QUALITY ASSURANCE:

- A. Codes and Standards: Comply with the provisions of the following codes, specifications and standards, except where more stringent requirements are shown or specified:
 - 1. ACI 301 "Specifications for Structural Concrete for Building."
 - 2. ACI 318 "Building Code Requirements for Reinforced Concrete."
 - 3. ACI 347 "Recommended Practice for Concrete Formwork."
 - 4. ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete."
 - 5. Concrete Reinforcing Steel Institute, "Manual of Standard Practice."
 - 6. California Building Code (CBC), 2013 Edition.
- B. Testing: Owner's testing laboratory will perform sampling and testing during concrete placement, which may include the following, as directed by the PA. Comply with LABC Section 91.2604.3.
 - 1. Sampling: ASTM C 172.
 - 2. Slump: ASTM C 173, one test for each load at point of discharge.
 - 3. Air Content: ASTM C 173, one for each set of compressive strength specimens.
 - 4. Compressive Strength: ASTM C 39, one set for each 50 cu. yds. of each grade of structural concrete; and at least one test for each day's concreting for each grade of concrete used, two specimens tested at 28 days.

1.02 SUBMITTALS:

- A. Comply with pertinent provisions of Section 01300.
- B. For all concrete, a signed copy of batch plant's certificate stating the quantity of each material, amount of water, admixtures, departure time and date shall accompany each load of materials or concrete.
- C. Submit test results as required by the AGENCY.
- D. Product Data: Submit manufacturer's product data with installation instructions for proprietary materials including reinforcement and forming accessories, admixture, joint materials, hardeners, curing materials and others as requested by the PA.

- E. Laboratory Reports: Submit laboratory test or evaluation reports for concrete materials and mix designs as required by the AGENCY.

PART 2 - PRODUCTS

2.01 FORM MATERIALS:

- A. Unless otherwise indicated, construct formwork for exposed concrete surfaces with 2x lumber or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings. Provide form materials with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection.

2.02 CONCRETE MATERIALS:

- A. Portland Cement: ASTM C 150, type I or type II.
- B. Aggregates: ASTM C 33, except local aggregates of proven durability may be used when acceptable to the PA. Provide aggregates from a single source for exposed concrete.
- C. Water: Potable.

2.03 CONCRETE ADMIXTURES:

- A. General: Provide admixtures produced by established reputable manufacturers and use in compliance with the manufacturer's printed directions. Do not use admixtures which have not been incorporated and tested in accepted mixes, unless otherwise authorized in writing by the PA.
- B. The following admixtures may be used with written approval of the PA. Conform to manufacturer's recommendations for use.
1. Water Reducing: ASTM C 494. Shall provide a minimum of 5% water reduction, 10% increase of 28 day compressive strength, drying shrinkage at 21 days shall be less than concrete without admixture.
 2. Acceleration or Retarding: ASTM C 494.
- C. Waterproofing Admixture: SIKA CHEMICAL CORPORATION "Sika Red Label" (Sikamix 198).
- D. Calcium chloride not permitted.

2.04 JOINT MATERIALS:

- A. Keyed Metal Joint: BURKE CONCRETE ACCESSORIES "Keyed Kold" 24 gauge galvanized steel joint form with steel "Keyed Kold" stakes.

B. Fiber Joint Filler: ASTM D 1751 non-extruding premolded bituminous impregnated fiberboard units. Plain or punched for dowels as required.

C. Plastic Joint Insert: "Quickjoint" T-shaped 1/16" plastic strip, 1 inch minimum depth as distributed by J.A. CRAWFORD CO., phone (213) 698-0901.

2.05 VAPOR BARRIER:

A. Provide vapor barrier cover over prepared base material where shown on drawings. Use only materials which are resistant to decay when tested in accordance with ASTM D 154, as follows:

1. Provide polyethylene sheet not less than 10 mils thick.

2.06 FINISH MATERIALS:

A. Sealer: A.C. HORN "Horntraz."

2.07 CURING MATERIALS:

A. Liquid Curing Compound: ASTM C 309, type 1 non-staining, approved standard product resin type.

1. Gray Cement: Free of wax or oil, compatible with subsequently applied finishes or coverings, delivered in unopened labeled containers.

B. Concrete Curing Paper: ASTM C 171, non-staining reinforced type.

2.08 PATCHING MATERIAL:

A. Bonding Agent: LARSON PRODUCTS "Weldcrete," W.R. GRACE "Daraweld" or SONNEBORN-CONTECH "Soncrete."

B. Patching Mortar: Latex modified Portland Cement mortar. Provide CUSTOM BUILDING PRODUCTS "Fix-a-crete."

2.09 PROPORTIONING:

A. Proportioning shall be by weight of loose, dry material, 94 pounds of cement shall be considered 1 cubic foot. Fine aggregate volume shall be at least 35% of the sum of the separate fine and coarse aggregate volumes.

Weighing equipment shall be accurate to within 1 pound and be adjustable for varying aggregate moisture content. A beam auxiliary shall register any part of the last 100 pounds of each aggregate. The aggregate hopper shall have a volume adjustment.

B. Accurately control the proportions, water content, and air content.

C. Waterproofing Admixture: Add to all concrete used for exposed roof slabs, slabs on grade and walls against grade. Add in accordance with manufacturer's instructions.

- D. Admixture (other than waterproofing and integral color): If admixture is used, conform to type specified. Quantity per sack of cement and method of using admixture shall be in accordance with recommendations of manufacturer and laboratory furnishing mix design.
- E. Non-shrink Grout: Pre-proportioned, or job mixed. For job-mix: one part, by weight, metallic aggregate mix; one part Portland cement; one part fine aggregate; and enough water for flowable consistency.
- F. Cement Grout: One part by volume Portland cement and 2 1/2 parts fine aggregate. Mix dry. Add just enough water to make mixture flow under its own weight.
- G. Dry Pack: One part by volume Portland cement and 2 1/2 parts fine aggregate, mixed dry. Add just enough water to dampen mix to a cohesive packing or tamping consistency.
- H. Patching Mortar: Mix liquid. Combine dry mix with liquid and add water in proportions recommended by manufacturer.

2.10 MIX DESIGN:

- A. Prepare design mixes for each type and strength of concrete indicated on plans.
 - 1. Proportions: For each material including admixtures and water, state water-cement ratio and maximum allowable water content, using not less than the minimum cement content required in paragraphs "proportioning."
 - 2. Materials: Manufacturer's name, designation and source of each material.
 - 3. Aggregate: Conform to LABC Section 91.2603.3.
 - 4. Modified Mix: Same as other concrete types except remove 50% of the coarse aggregate.

2.11 CONCRETE TYPES:

- A. Refer to structural drawings for specific uses and locations.
- B. Specified strengths measured at 28 days.
 - 1. Standard Weight Concrete: 2500 psi. minimum unless otherwise specified.

2.12 MIXING CONCRETE:

- A. Ready-Mixed Concrete: Concrete shall be supplied by an established commercial ready-mix plant conforming to ASTM C 94.

1. Truck Mixers: Minimum 2 cu. yd. capacity, equipped with accurate revolution counter. Operate at rated speed. Discontinue use of mixers producing unsatisfactory concrete or showing more than 10% difference in sand-cement or water-cement ratios in samples taken from front, center and back of mixer.
 2. Mixing Time: Total at least 15 minutes, with at least 5 minutes immediately after addition of water, and at least 10 minutes just before discharging.
 3. Mixing Water: Withhold 2 1/2 gallons per cubic yard from predetermined water content. All or part thereof may be added at site, as directed.
- B. Re-tempered Concrete: Concrete not placed within 90 minutes after water is introduced into mix or which has stood for 30 minutes after leaving mixer shall not be used.

PART 3 - EXECUTION

3.01 FORMS:

- A. Design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by concrete structure. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation and position. Comply with ACI 347.
- B. Design and fabricate formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.
- C. Provide temporary opening where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement and for placement of concrete.
- D. Chamfer exposed corners and edges as indicated, using wood, metal, PVC or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
- E. Form Ties: Factory fabricated, adjustable length, removable or snap-off metal form ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal.
- F. Provide openings in formwork to accommodate work of other trades. Accurately place and securely support items build into forms.

3.02 VAPOR BARRIER:

- A. Place interior slabs on grade over vapor barrier consisting of 2 inch bed of washed natural sand over vapor barrier sheet. Turn up edges of vapor barrier 2 inches. Lap edges 6". Tape and seal all edge laps and penetrations. Roll sub-grade smooth prior to placing vapor barrier.
 1. Omit stakes at metal joints occurring over vapor barrier. Use screed pads to hold screed posts. Do not pierce vapor barrier.

2. Do not disturb or damage vapor barrier while placing metal formed joints and concrete reinforcing. If damage does occur, repair areas before placing concrete. Use vapor barrier material, lapped over damaged areas minimum 6" in all directions and seal.

3.05 JOINTS:

- A. Provide construction, isolation, and control joints as indicated or required. Locate construction joints so as to not impair the strength and appearance of the structure. Place isolation and control joints in a slabs-on-ground to stabilize differential settlement and random cracking.
- B. Metal Formed Joint: "Key-Kold" type metal joint form. Set top of stakes 3/8" below slab surface elevation, spaced at 2'-0" o.c.. When concrete is not poured continuously over both sides of joint, the knockout anchors shall be bent at 45 degree angle into the pour. Finish the concrete to the top of the joint and burn in with hand trowel.

3.06 INSTALLATION OF EMBEDDED ITEMS:

- A. Set and build into the work anchorage devices and other embedded items required for other work that is attached to, or supported by cast-in-place concrete. Use setting diagrams, templates and instruction provided by others for locating and setting.

3.07 CONCRETE PLACEMENT:

- A. Pre-placement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moistened wood forms immediately before placing concrete where form coatings are not used.
- B. Coordinate the installation of joint materials and moisture barriers with placement of forms and reinforcing steel.
- C. Comply with ACI 304, placing concrete in a continuous operation within planned joints or sections. Do not begin placement until work of other trades affecting concrete is completed.
- D. Consolidate placed concrete using mechanical vibrating equipment with hand rodding and tamping, so that concrete is worked around reinforcement and other embedded items and into all part of forms.
- E. Maintain reinforcing in proper position during concrete placement operations.
- F. Tolerances: Variations in finish surfaces shall not exceed 1/8 inch in any direction along a 10 foot straightedge.
- G. Protect concrete from physical damage or reduced strength due to weather extremes during mixing, placement and curing.

1. In cold weather comply with ACI 306.
2. In hot weather comply with ACI 305.

3.08 FINISH OF FORMED SURFACES:

- A. Rough Form Finish: For formed concrete surfaces not exposed-to-view in the finish work, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height rubbed down or chipped off.
- B. Smooth Form Finish: For formed concrete surfaces exposed-to-view, or that are to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, damp-proofing, painting or other similar system. This is as-cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with fins or other projections completely removed and smoothed.

3.09 SLAB FINISH:

- A. Non-Slip Broom Finish: Apply non-slip broom finish to exterior concrete paving.
 1. Immediately after trowel finishing, slightly roughen concrete surface by brooming with hair bristle broom perpendicular to main traffic route. Coordinate required final finish with the PA before application.
- B. Sealer: Apply to scheduled areas in accordance with manufacturer's printed instructions.

3.10 CONCRETE CURING:

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
 1. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.
 2. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.
- B. Curing Methods: Perform curing of concrete by moist curing, by moisture retaining cover curing, by curing compound, and by combination thereof, as herein specified.
- C. Do not use membrane curing compounds on surfaces which are to be covered with coating material applied directly to concrete, liquid floor hardener, waterproofing, damp-proofing, membrane roofing, flooring, painting, and other coatings and finish materials, unless otherwise acceptable to the PA.

- D. Curing Formed Surfaces: Cure formed concrete surfaces, including undersides of beams, supported slabs and other similar surface by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.
- E. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by application of appropriate curing compound.

3.11 REMOVAL OF FORMS:

- A. Time: Remove forms after concrete has developed sufficient strength to sustain its own weight and superimposed loads, but not before the time listed below:
 - 1. Slabs: 1 day.

3.12 RE-USE OF FORMS:

- A. Clean and repair surfaces of forms to be re-used in the work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable. Apply new form coating compound material to concrete contact surfaces as specified for new formwork.
- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close all joints. Align and secure joints to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to the PA.

3.13 MISCELLANEOUS CONCRETE ITEMS:

- A. Equipment Bases: Form concrete bases for all mechanical and electrical equipment indicated on the drawings, including architectural, structural, mechanical, electrical, and plumbing drawings, in accordance with approved shop details furnished by the various trades. Corners shall be bullnosed and bases shall be coved.
 - 1. Set anchor bolts for machines and equipment to template at correct elevations, complying with certified diagrams or templates of manufacturer furnishing machines and equipment.
- B. Pits, Trenches, Curbs: Form and pour pits for valves, trenches, curbs, and miscellaneous concrete items. Steel trowel surfaces hard, dense and smooth with corners, intersections, and terminations rounded. Where structural details for minor structures listed above do not specify otherwise, walls, floors and covers shall be 6" thick, reinforced with #3 bars, 6" o.c. both ways at center of members.

3.14 CONCRETE SURFACE REPAIRS:

- A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to the AGENCY representative.
- B. Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of the AGENCY representative.

- C. Do not leave exposed steel ties, clamps, in concrete. Solid pack holes resulting from form construction after flushing them with water. Fill tie wire, nail, bolt, nut, separator and core sample holes, which will be exposed within 24 hours after forms are stripped.
 - 1. Cut out honeycomb, rock pockets, voids over 1/4" in any dimension, and holes left by tie rods and bolts, down to solid concrete but, in no case to a depth of less than 1". Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water and brush-coat the area to be patched with specified bonding agent. Place patching mortar after bonding compound has dried.
 - 2. Match surrounding architectural concrete surfaces in color and texture. Make trial patch to determine color match.

3.15 FIELD QUALITY CONTROL:

- A. Slump Tests: Measure concrete consistency by the "Standard Method of Test for Slump of Portland Cement Concrete," ASTM Designation C 143. Make this test at point of discharge twice each day or partial day's run. A complete and accurate record of these tests shall be kept by the inspector. Maximum slump shall be as follows:
 - 1. Walls 4" to 5".
 - 2. Floor slab on grade, 3" to 4".
- B. Cylinder Samples: Make concrete test cylinder samples in accordance with ASTM C 31.

3.16 DEFECTIVE CONCRETE:

- A. Mix Proportions: If ultimate compressive strength of test cylinders fall below minimum assumed in design, proportions of concrete mixes for remaining portion of structure shall be adjusted as required to produce concrete of design strength.
- B. Test Cores: Should the required test cylinders fail to show design compressive strength, test cores shall be taken at locations designated by the PA. Cores shall be tested complying with LABC Section 91.2604.3.5.1. If results show compressive strength to be less than design stress, concrete shall be deemed defective and shall be replaced in a manner acceptable to the AGENCY representative, and the Building Department. Cost of cores, tests, and patching shall be paid by Contractor. Coring holes shall be dry-packed.
- C. Concrete work not formed as indicated, not true to intended alignment, not plumb, level, or true to intended grades, with embedded sawdust or debris, and not fully conforming to the provisions of these specifications shall be deemed defective and shall be removed from the job site as directed by the AGENCY representative and shall be replaced with concrete complying with specification requirements.

END OF SECTION

SECTION 03310 - FOOTINGS AND FOUNDATIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

The provisions of *The "Greenbook" Standard Specifications for Public Works Construction* shall apply except as modified herein.

1.02 SCOPE OF WORK:

Work included: Provide all footings and foundations, complete in place, as indicated on the drawings, specified herein, and needed for a complete and proper installation.

1.03 QUALITY ASSURANCE:

Qualifications of Installers:

Throughout the progress of installation of the work of this Section, provide at least one person who shall be thoroughly familiar with the specified requirements, completely trained and experienced in the necessary skills, and who shall be present at the site and shall direct all work performed under this Section.

Use adequate number of skilled workers to ensure installation in strict accordance with the approved design.

Details provided on plans with notes. If notes conflict with book specification, the more stringent shall apply.

PART 2 - MATERIALS

2.01 GENERAL:

All materials shall conform to Section 201 of the latest edition of *The "Greenbook" Standard Specifications for Public Works Construction*.

- A. Portland Cement: Section 201-1.2.1, Type I or II, low alkali. Only one brand of cement shall be used.
- B. Aggregates: Conform to Section 201-1.2.2.
- C. Water shall be clean and free from deleterious materials.
- D. Form lumber shall be uniform construction grade or better.
- E. Provide reinforcement steel as indicated on the drawings and in conformance with the requirements of the uniform building code latest edition.

PART 3 - EXECUTION**3.01 GENERAL:**

All materials shall conform to Section 302.6 of the latest edition of *The "Greenbook" Standard Specifications for Public Works Construction* except as modified herein.

3.02 CONCRETE MIX:

- A. The Contractor shall supply and pay all costs for concrete mix designs.
- B. In no case shall concrete contain less than 5 sacks of cement per cubic yard, and a maximum of 7 gallons of water per sack of cement.
- C. Concrete mixes shall be proportioned by the using of 1-inch maximum size aggregate.
- D. Concrete shall develop an ultimate compressive strength at 28 days of 3000 P.S.I. Special Inspector shall be provided at the Contractor's expense.
- E. The maximum slump for slab on grade shall be 4".

3.03 TESTS AND INSPECTION:

- A. The quality and quantity of materials used in the concrete shall be controlled at the batch plant by a Weighmaster.
- B. Contractor shall deliver two copies of each load ticket to the AGENCY.

3.04 FORMWORK:

- A. Form shall be substantial, unyielding, true to line and grade, and shall conform to the dimensions indicated on the drawings.
- B. Edge of footing shall not cross property line or right of way line.

3.05 TRANSPORTATION AND PLACING CONCRETE:

Responsibility for proper placing, compacting and finishing rests with the Contractor. Finished work showing voids and separation of aggregates will not be accepted.

3.06 CURING CONCRETE:

All concrete surfaces shall be kept continuously wet for a period of not less than 36 hours by ponding, soaking or spraying. Following this 36 hour period, the concrete shall be protected from loss of moisture by an approved liquid curing compound.

END OF SECTION

SECTION 03380 - CONCRETE CURING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

The provisions of *The "Greenbook" Standard Specifications for Public Works Construction* shall apply except as modified herein.

1.02 SCOPE OF WORK:

Furnish materials, labor, transportation, services, and equipment necessary to install all Concrete Curing related to the park as indicated on the Drawings complete as shown and as specified herein.

Related Work:

Concrete	Section 03010
Footings & Foundations	Section 03310

1.03 REFERENCES:

Comply with the applicable reference specifications as specified in the GENERAL PROVISIONS and in accordance with applicable laws, codes and regulations required by the County of Riverside, CA. Comply with the current provisions of the following Codes and Standards:

ASTM - American Society for Testing and Materials:

ASTM C94 - Ready-Mixed Concrete.

ASTM C150 - Portland Cement.

ASTM C271 - Sheet Materials for Curing Concrete.

ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete.

ACI - American Concrete Institute:

ACI 301 - Specifications for Structural Concrete for Buildings.

ACI 305 - Recommended Practice for Hot Weather Concreting.

ACI 306 - Recommended Practice for Cold Weather Concreting.

ACI 318 - Building Code Requirements for Reinforced Concrete.

CBC - 2013 Edition of the California Building Code

1.04 SUBMITTALS:

In accordance with Contract Documents, General and Technical Provisions.

Submit product data and manufacturer's instructions for:

1. Curing compound.
2. Proprietary cleaning agents.
3. Plastic film for curing.

4. Surface retarders.

1.05 DELIVERY, STORAGE, AND HANDLING:

Store materials in dry and protected locations and protect from damage.

1.06 SITE CONDITIONS:

Environmental Requirements: Protect concrete against extreme cold and heat, frost, rapid drying, and damage by rain.

PART 2 - PRODUCTS

2.01 MATERIALS:

Curing Compound: ASTM C 309, non-staining, all resin type, white-pigmented, compatible with color admixture.

Acceptable Product: Burke Spartan-Cote Cure or equal. Curing Compound Application Rate: 350 sq. ft./U.S. Gallon (12.5m sq./L)

PART 3 - EXECUTION

3.01 CURING:

Protect concrete surfaces against rapid drying. Keep sealed with cure agent for necessary amount of time to reach concrete strength and inhibit moisture loss after placing per manufacturer's recommendation.

Apply to exposed surface of concrete as soon as manufacturer recommends with an airless sprayer.

Apply to sides of concrete paving upon removal of form boards.

Meet requirements of manufacturer's current printed application instructions.

Uniformly apply 2 coats and apply the second coat at right angle to first coat.

Apply compound to form a continuous, uniform, coherent film that will not check, crack, or peel.

Do not apply to concrete that is still bleeding, or has a visible water sheen on the surface.

Protect paving surfaces from foot traffic with scuff-proof paper.

Immediately re-coat damaged areas of curing compound.

Protect surface from water, adjacent concrete work and debris.

3.02 CLEANUP:

Contractor to remove all cure agent from concrete surface with power washing equipment and soft brush not causing abrasion to finish work surface prior to final inspection. No Cure Agent shall be present on any surfaces for final inspection acceptance. Remove debris and trash resulting from specified work.

END OF SECTION

County of Riverside
Economic Development Agency

SPECIAL FEDERAL PROVISIONS
CONSTRUCTION BID DOCUMENT
Projects Over \$100,000

Community Development Block Grant
Construction Activities

Last Date of Revision: February 9, 2017

SPECIAL FEDERAL PROVISIONS DOCUMENT INDEX

General Information

1. General Summary
2. Hold Harmless Clause and Additional Insured-Insurance Requirements
3. B-1 Federal Labor Standards Provisions (HUD 4010)
4. B-2 Federal Prevailing Wage Decision (CA _____ Mod. _____)
5. B-3 Project Sign
6. B-5 County of Riverside Section 3 Affirmative Action Policy (Applicable for Projects \$100,000 or more)
7. Additional Federal Requirements

Bid Forms

8. B-4 Certification of Bidder Regarding Non-segregated Facilities (Required for all Projects)
9. B-6 Bidder's Certification for Section 3 Compliance (Required for Projects \$100,000 or more)
10. B-6(SUB) Subcontractor Certification for Section 3 Compliance (Required for Projects \$100,000 or more)
11. B-7 Bidder's Certification on Federal Contract Requirements (Required for all Projects)
12. B-8 Questionnaire Regarding Bidders (Required for all Projects)
13. B-9 List of Subcontractors and Suppliers (Required for all Projects)

Post-Award Forms

14. PA-1 Performance Bond (100% of contract price) (Required for Projects \$100,000 or more)
15. PA-2 Payment Bond (Required for Projects \$100,000 or more)
16. PA-3 Subcontractor Questionnaire (Required for all Projects)
17. PA-4 Subcontractor Certification Regarding Non-segregated Facilities (Required for all Projects)
18. PA-5 Section 3 Summary Report (Required for Projects \$100,000 or more)
19. PA-6 Davis-Bacon Classifications and Pay Rates (Required for all Projects)

GENERAL SUMMARY

The following Federal Provisions and the attached exhibits herewith become binding on the contractor(s) and incorporated in the Bid Document in their entirety.

1. The Contractor and the Subcontractor(s) shall perform all work in accordance with the project plans and specifications, including all stipulations designed to meet diversified Federal Environmental Architectural, the Architectural Barriers Act of 1968, as amended; the Americans with Disabilities Act of 1990, Public Law 101-336, as amended.
2. The Contractor and the Subcontractor(s) shall allow all authorized Federal, State Comptroller, and/or County officials access to the work area, fiscal, payroll, materials and other relevant contract records which are directly pertinent to that specific contract for the purpose of making audit, examination, excerpts, and transcriptions. All relevant records must be retained for at least four years.
3. The Contractor and the Subcontractor(s) shall comply with the Lead Based Paint Poisoning Prevention Act and the Implementation Regulations (24 CFR 35) issued pursuant thereto and any amendments thereof.
4. The Contractor and the Subcontractor(s) shall comply with Section 503 of the Rehabilitation Act of 1973 (P.L. 93-112) and the Implementation Regulations (41 CFR 60-741) issued pursuant thereto and any amendments thereof.
5. The Contractor and the Subcontractor(s) shall comply with Section 40-2, Vietnam Era Veterans Adjustment Assistance Act of 1974 and the Implementation Regulations (41 CFR 60-250) issued pursuant thereto and any amendment thereof.
6. The Contractor and the Subcontractor(s) shall comply with the Title IV of the Civil Rights Act of 1964 and the Title VIII of the Civil Rights Act of 1963 and any amendment thereof.
7. For projects \$100,000 or over, the Contractor and the Subcontractor(s) shall comply with Clean Air Act of 1963 (P.L. 90-148) and the Federal Water Pollution Act (P.L. 92-500), as amended and all applicable standards or regulations (40 CFR Part 15 and 61) issued pursuant to the said acts.
8. For projects \$2,000 or over, the Contractor and the Subcontractor(s) shall comply with the Davis-Bacon Fair Labor Standards Act (40 USC a-276 a-5), and the implementation regulations issued pursuant thereto (29 CFR Section 1, 5) and any amendments thereof. Pursuant to the said regulations, Exhibit B-1 and B-2 entitled "Federal Labor Standards Provisions" and "Federal Prevailing Wage Decision" respectively are herewith attached.
9. The Contractor and Subcontractor(s) shall comply with the Copeland Anti Kickback Act (40 USC 276 C) and the Implementation regulations (29 CFR 3) issued pursuant thereto and any amendments thereof. Exhibit B-1 contains the key provisions of the said act.

10. For construction projects \$2,000 or over, or other projects \$2,500 or more which utilize mechanics or laborers the Contractor and the Subcontractor(s) shall comply with the Contract Work Hours and Safety Standards Act (40 USC 327-332) and the Implementation Regulations (29 CFR 5) issued pursuant thereto and any amendments thereof. **Exhibit B-1** contains the key provisions of the said act.
11. For projects \$25,000 or over the Contractor shall provide one sign board to be located as directed by the owner. The sign board shall be mounted in an acceptable manner and constructed as shown and specified in **Exhibit B-3**. Additional information can be added to the project sign at the request of the project sponsor.
12. The Contractor shall comply with all laws, ordinances and regulations applicable to the work. If the Contractor ascertains at any time that any of the requirements of the contract are at variance with applicable law, ordinances, regulations or building code requirements, he shall promptly notify the owner and the Executive Director of Riverside County's Economic Development Agency and shall not proceed with the work in question, except at his own risk, until the owner and the said Director has had an opportunity to determine the extent of the responsibility for the variance and the appropriate corrective actions undertaken.
13. The Contractor must complete and execute the attached Certification of Bidder Regarding Segregated Facilities **Exhibit B-4** and submit with the bid.
14. Wherever applicable, the Contractor and the Subcontractor(s) shall comply with, Uniform Administrative Requirements for Grants and Cooperative Agreements to State, Local and Federally Recognized Indian Tribal Governments, 24 CFR Part 85 or Uniform Requirements for Assistance to State and Local Governments, Circular A-102; Whichever is applicable.
15. For projects \$100,000 or over the Contractor shall furnish to the owner, a Performance bond, a Payment bond, and Materials Bond executed as surety by a corporation acceptable to the owner and authorized to issue surety bonds in the State of California. Such a performance bond and a payment bond and materials bond shall be for one hundred percent (100%) of the total contract price. (Attached herewith are recommended formats for said bonds, **Exhibits PA-1 and PA-2**).
16. The Contractor and the Subcontractor(s) shall comply with Section 3 of The Housing and Community Development Act of 1968 and the regulations (24 CFR 135) issued pursuant thereto and amendments thereof. Pursuant to the said act, the Contractor and the Subcontractor(s) shall comply with the attached County of Riverside Section 3 Policy and Requirements **Exhibits B-5, B-6, and PA-6**. The Contractor must submit **Exhibit B-6**, for all projects over \$100,000, as part of the bid package.
17. The Contractor must submit the attached, **Exhibit B-7**, certification that "he/she fully understands the diversified Federal requirements imposed on the Contractor(s) of HUD funded construction projects", as part of the bid package.

18. Wherever applicable, the Contractor and the Sub-contractor(s) shall comply with Section 109 of The Housing and Community Development Act of 1974 and the Implementation Regulations (24 CFR570.601) issued pursuant thereto and any amendments thereof.
19. For projects \$100,000 or over the Contractor shall submit a Bid Guarantee Bond in an amount no less than 5% of the total contract price, along with the bid.
20. The Contractor and Sub-contractor(s) shall comply with the Affirmative Action Reporting Requirements by completing the attachment **Exhibit B-6 and B-6 Sub** entitled, "Contractor Certification for Affirmative Action," and submit with bid for all projects \$100,000 and over.
21. Federal Employee Benefit Clause: No member of or delegate to the congress of the United States, and no Resident Commissioner shall be admitted to any share or part of this agreement or to any benefit to arise from the same.
22. The Contractor must submit Questionnaire Regarding Bidders Exhibit B-8 and List of Sub-contractors Exhibit B-9 as part of the bid package. These forms are considered part of the Federal Contracting Requirements and are included in the bid document. Both documents are required to be completed by the Prime Contractor.
23. The Contractor shall follow mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub. L. 94-163, 89 Stat. 871). [53 FR 8068,8087, Mar. 11, 1988, as amended at 60 FR 19639,19642, April 19, 1995]
24. Contractor must comply with awarding agency (HUD) requirements and regulations pertaining to copyrights and rights in data.
25. Contractor will comply with Notice of awarding agency requirements and regulations pertaining to patent rights with respect to any discovery or invention which arises or is developed in the course of or under such contract.
26. Contractor will comply with notice of awarding agency requirements and regulations pertaining to reporting.

HOLD HARMLESS CLAUSE/INSURANCE REQUIREMENTS

The following County of Riverside Hold Harmless and Insurance provisions herewith become binding on the contractor(s) in their entirety.

HOLD HARMLESS/INDEMNIFICATION

CONTRACTOR shall indemnify and hold harmless the County of Riverside, its Agencies, Districts, Special Districts and Departments, their respective directors, officers, Board of Supervisors, elected and appointed officials, employees, agents and representatives (individually and collectively hereinafter referred to as Indemnitees) from any liability whatsoever, based or asserted upon any services of CONTRACTOR, its officers, employees, subcontractors, agents or representatives arising out of or in any way relating to this Agreement, including but not limited to property damage, bodily injury, or death or any other element of any kind or nature whatsoever arising from the performance of CONTRACTOR, its officers, employees, subcontractors, agents or representatives Indemnitors from this Agreement. CONTRACTOR shall defend, at its sole expense, all costs and fees including, but not limited, to attorney fees, cost of investigation, defense and settlements or awards, the Indemnitees in any claim or action based upon such alleged acts or omissions.

With respect to any action or claim subject to indemnification herein by CONTRACTOR, CONTRACTOR shall, at their sole cost, have the right to use counsel of their own choice and shall have the right to adjust, settle, or compromise any such action or claim without the prior consent of COUNTY; provided, however, that any such adjustment, settlement or compromise in no manner whatsoever limits or circumscribes CONTRACTOR'S indemnification to Indemnitees as set forth herein.

CONTRACTOR'S obligation hereunder shall be satisfied when CONTRACTOR has provided to COUNTY the appropriate form of dismissal relieving COUNTY from any liability for the action or claim involved. The specified insurance limits required in this Agreement shall in no way limit or circumscribe CONTRACTOR'S obligations to indemnify and hold harmless the Indemnitees herein from third party claims. In the event there is conflict between this clause and California Civil Code Section 2782, this clause shall be interpreted to comply with Civil Code 2782. Such interpretation shall not relieve the CONTRACTOR from indemnifying the Indemnitees to the fullest extent allowed by law.

INSURANCE

Without limiting or diminishing the CONTRACTOR'S obligation to indemnify or hold the COUNTY harmless, CONTRACTOR shall procure and maintain or cause to be maintained, at its sole cost and expense, the following insurance coverage's during the term of this Agreement. As respects to the insurance section only, the COUNTY herein refers to the County of Riverside, its Agencies, Districts, Special Districts, and Departments, their respective directors, officers, Board of Supervisors, employees, elected or appointed officials, agents or representatives as Additional Insureds.

A. Workers' Compensation:

If the CONTRACTOR has employees as defined by the State of California, the
S:\ACDBG\CONSTRUCTION\General Summary of SPECIAL FEDERAL PROVISIONS.docSPECIAL FEDERAL PROVISIONS

CONTRACTOR shall maintain statutory Workers' Compensation Insurance (Coverage A) as prescribed by the laws of the State of California. Policy shall include Employers' Liability (Coverage B) including Occupational Disease with limits not less than \$1,000,000 per person per accident. The policy shall be endorsed to waive subrogation in favor of The County of Riverside.

B. Commercial General Liability:

Commercial General Liability insurance coverage, including but not limited to, premises liability, unmodified contractual liability, products and completed operations liability, personal and advertising injury, and cross liability coverage, covering claims which may arise from or out of CONTRACTOR'S performance of its obligations hereunder. Policy shall name the COUNTY as Additional Insured. Policy's limit of liability shall not be less than \$1,000,000 per occurrence combined single limit. If such insurance contains a general aggregate limit, it shall apply separately to this agreement or be no less than two (2) times the occurrence limit.

C. Vehicle Liability:

If vehicles or mobile equipment are used in the performance of the obligations under this Agreement, then CONTRACTOR shall maintain liability insurance for all owned, non-owned or hired vehicles so used in an amount not less than \$1,000,000 per occurrence combined single limit. If such insurance contains a general aggregate limit, it shall apply separately to this agreement or be no less than two (2) times the occurrence limit. Policy shall name the COUNTY as Additional Insureds.

D. Professional Liability (ONLY TO BE INCLUDED IN CONTRACTS WITH SERVICE PROVIDERS INCLUDING BUT NOT LIMITED TO ENGINEERS, DOCTORS, AND LAWYERS) Contractor shall maintain Professional Liability Insurance providing coverage for the Contractor's performance of work included within this Agreement, with a limit of liability of not less than \$1,000,000 per occurrence and \$2,000,000 annual aggregate. If Contractor's Professional Liability Insurance is written on a claims made basis rather than an occurrence basis, such insurance shall continue through the term of this Agreement and CONTRACTOR shall purchase at his sole expense either 1) an Extended Reporting Endorsement (also, known as Tail Coverage); or 2) Prior Dates Coverage from new insurer with a retroactive date back to the date of, or prior to, the inception of this Agreement; or 3) demonstrate through Certificates of Insurance that Contractor has Maintained continuous coverage with the same or original insurer. Coverage provided under items; 1), 2) or 3) will continue for a period of five (5) years beyond the termination of this Agreement.

E. General Insurance Provisions- All Lines:

a) Any insurance carrier providing insurance coverage hereunder shall be admitted to the State of California and have an A M BEST rating of not less than A: VIII (A:8) unless such requirements are waived, in writing, by the County Risk Manager. If the County's Risk Manager waives a requirement for a particular insurer such waiver is only valid for that specific insurer and only for one policy term.

b) The Contractor's insurance carrier(s) must declare its insurance deductibles or self-insured retentions. If such deductibles or self-insured retentions exceed \$500,000 per occurrence such deductibles and/or retentions shall have the prior written consent of the County Risk Manager before the commencement of operations under this Agreement. Upon