

Project Specifications

Carmichael Park Bocce Ball Court Improvements Carmichael, California

February 2018

Client:

Carmichael Recreation and Park District

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SECTION 01 11 00

SUMMARY OF WORK

PART 1 – GENERAL

1.01 GENERAL CONDITIONS

- A. The general provisions of the Contract, including General and Supplementary Conditions and General Requirements, apply to the work specified in this Section.

1.02 PRINCIPAL WORK IN THIS SECTION

- A. The Contractor shall furnish all labor, materials, tools, equipment, and incidentals, and do all work involved in executing the contract in a satisfactory manner. Unless otherwise noted on the approved drawings or in these specifications, all work shall conform to these specifications, and the Standard Specifications, latest edition, and State Standard Specifications, latest edition. These Standard Specifications are a part of the Contract Documents, but will not be supplied as part of the plan distribution.
- B. A copy of the Contract Documents and a copy of the Standard Specifications, shall be kept at construction site at all times.

1.03 REFERENCE STANDARDS AND SPECIFICATIONS

- A. The term "Standard Specifications" is understood to refer to the Standard Construction Specifications of the Standard Construction Specifications of the County of Sacramento, latest edition.
- B. The term "State Standard Specifications" is understood to refer to the Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation (Caltrans), latest edition.
- C. CAL/OSHA Construction Safety Orders.
- D. The term "Contract Documents" is understood to refer to the Plans, Technical Specifications, Standard Specifications, General and Supplemental Conditions, Special Provision and any other documentation related to and associated this project.

1.04 OWNER, OWNERS REPRESENTATIVE AND PROJECT INSPECTOR

- A. The Owner is Carmichael Recreation and Park District, and is referred to "District" in the Contract Documents.
- B. The Owner's Representative shall be the Landscape Architect of The HLA Group, Landscape Architects and Planners, Inc. or others designated by the Owner.

- C. The Project Inspector shall be the inspector assigned to this project by Carmichael Recreation and Park District and referred to as "District" in the Contract Documents, unless otherwise noted.
- D. The Construction Manager shall be the construction manager assigned to this project by Carmichael Recreation and Park District and referred to as "District" in the Contract Documents, unless otherwise noted.

1.05 CONTRACTOR USE OF PREMISES

- A. Contractor shall limit use of premises for work, storage, and access to allow:
 - 1. User Access: Schedule and substantially complete designated portions of work for Owners access prior to substantial completion of entire work, as directed by the Project Inspector.
 - 2. Work by other contractors.
 - 3. Work by Testing Laboratory.
- B. Assume full responsibility for protection and safe-keeping of products under this Contract.
- C. Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- D. The general areas for work are shown on the Contract Documents and the Contractor shall confine his operations accordingly. Where necessary to work outside these general areas in order to comply with the Contract Documents, the Contractor shall work within limits approved by the District in written form and arranged prior to construction start.
- E. Debris dropped on the immediate area due to work, service access ways, or streets under this Contract shall be promptly cleaned up by the Contractor to the satisfaction of the District.

1.06 LANDS BY OWNERS

- A. The District will provide the lands, sites, right-of-way and easements upon which the work under the contract is to be constructed, together with the right-of-access onto such lands.
- B. Contractor may store equipment and materials within the site, however, Contractor shall not unreasonably encumber the premises with his equipment or materials, and shall use only those areas approved by the District to stage his construction work.

1.07 QUALITY ASSURANCE

- A. Contractor shall be trained and experienced in the skills required, and must be completely familiar with the products and their installation. Contractor shall be present at all times during the progress of work and shall direct all work performed.

- B. Manufacturer's Directions: Where it is required in the Specifications that materials, products, processes, equipment or the like be installed or applied in accordance with manufacturer's instruction, directions, or specifications, it shall be construed to mean that said application or installation shall be in strict accordance with printed instructions furnished by the manufacturer of the materials concerned for use under conditions similar to those at the job site.
- C. Omissions from the Contract Documents and/or or the misdescription of Contract Documents or work which is manifestly necessary and customarily performed to carry out the intent of the Contract Documents, shall not relieve the Contractor from performing such omitted or misdescribed details of the work. They shall be performed as if fully and correctly set forth and described in the Contract Documents at no additional cost to the District.

1.08 LAYOUT OF WORK AND COORDINATION

A. Layout of Work:

1. Prior to commencing work, the Contractor shall carefully review and compare all Contract Documents for any discrepancies which effect the location or elevation of the work to be executed by him. Should any discrepancy be found, he shall immediately notify the same to the Project Inspector, for verification and adjustment.
2. The Contractor shall be responsible for providing all construction staking for the project. All staking shall be performed by a California Licensed Land Surveyor at the Contractor's expense.
3. Contractor shall exercise proper precautions to verify figures or dimensions shown in the Contract Documents before laying out of work and shall be held responsible for any error resulting from his failure to exercise such precautions.

B. Coordination:

1. Contractor shall be responsible for the coordination of all construction operations on the job site.
2. Contractor shall be responsible for the ordering of all materials and equipment immediately after the award of contract to ensure adequate time for manufacturing, shipping and installation. If any materials or equipment are not ordered in time, additional costs made by equipment manufacturer's to complete their equipment in time to meet the construction schedule together with any special handling and/or shipping costs shall be borne solely by the Contractor. NO project extensions shall be granted due to improper lead time in ordering.
3. Contractor shall conform to all adjacent grades, utilities facilities, forms and shapes to insure a uniform transition of work to existing conditions.

1.09 CODES AND STANDARDS

- A. The codes adopted by the County, State and Federal agencies shall govern minimum requirements for this project; where codes conflict with the Contract Documents, the more stringent shall apply and such conflicts shall be brought to the immediate attention of the District and Owner's Representative. In the absence of specific requirements in the Contract Documents, the applicable codes shall govern.
- B. All codes and standards referenced to within the Contract Documents, shall be the latest edition in effect at the time of bid opening.

1.10 PERMITS, FEES AND LICENSES

- A. The Contractor shall be responsible for the cost of all permits and fees required by the County of Sacramento for work on this project. The Contractor is responsible to obtain permits for the District. Permits must be shown to the District prior to start of the work.

1.11 EXISTING FACILITIES

- A. The types, locations, sizes and/or depths of existing overhead and underground utilities shown on the Contract Documents were obtained from sources of varying reliability. The Contractor is cautioned that only actual excavation will reveal the types, locations, sizes and/or depths of said utilities. The Contractor is solely responsible for locating existing facilities and advising the District and Owner's Representative if conflicts exist.
- B. The Contractor shall exercise extreme care when working near, over or under existing utility facilities. All work near, over, under, or connecting to existing facilities shall be done in accordance with the affected utility jurisdiction's requirements.
- C. Ensure uninterrupted service of all existing roads and utilities during construction. Determine location of all such facilities, whether shown on the Contract Documents or not, and coordinate by-pass of these facilities with appropriate agency.

1.12 WATERING

- A. The District shall provide water service stubs on-site. The Contractor shall provide connection to this service for his construction requirements. The water meter has been previously installed and all fees have been paid by the District. The Contractor shall provide proper connection to this existing service in accordance with County of Sacramento standards and details.
- B. Watering shall include all dust control for site excavation, fills for compaction, and all other construction.

1.13 UTILITIES FOR CONSTRUCTION

- A. Contractor is responsible for all costs associated with temporary utilities used during construction and the maintenance period.

1.14 CONSTRUCTION SAFETY

- A. Follow construction procedures necessary to provide a safe working condition through all phases of the project. Said procedures shall conform to the Safety Order, Division of Industrial Safety, Title 8, California Administrative Code.
- B. Conform to all applicable requirements of the Federal Occupational Safety and Health Administration.
- C. Contractor is solely responsible for outlining the safety procedures to be followed by his workmen, all subcontractors, and related trades working on his job. He will always provide for the safety of the public both day and night where they are exposed to his construction operation.
- D. The District and Owner's Representative are not hired to review or approve safety procedures followed by Contractor.
- E. Contractor shall be aware the work under this contract shall be performed in an existing park site located in an existing residential community. All construction areas shall be protected for public safety in accordance with all public safety laws, local codes and governing regulations.

1.15 PROJECT MEETINGS

- A. Pre-Construction Conference: Prior to start of construction, the Contractor shall schedule a meeting with the District, Owner's Representative, and major subcontractors for the purpose of reviewing the job schedule, change order procedure, progress payments, job site submittals and materials testing and other matters as necessary.
- B. Intermittent Conferences: At any time during the progress of the work, the District shall have authority to require the Contractor to attend a conference of any or all of the Sub-Contractors engaged on the work, and any notice of such conference shall be duly observed and complied with by the Contractor.

1.16 INSPECTION OF WORK

- A. Inspection of work and special inspections shall be as required by all applicable codes (California Building Code, latest edition). Notify District forty-eight hours prior to a required inspection. Work shall not be closed-in or covered prior to inspection and approval by the Project Inspector or designate.
- B. Contractor shall provide reasonable access to all work to be inspected and the entire construction site.
- C. In all cases where tests are requested by the District, the District shall pay for such tests. Additional tests due to failure to meet Contract Documents shall be done at the Contractor's expense.

1.17 CLEAN UP

- A. During progress of work, the Contractor shall keep job site in clean and orderly condition. Excess or unsuitable material, broken material, or waste material shall be removed from job site. Spillage resulting from hauling along or across existing streets or roads shall be removed immediately. All gutters and roadside ditches shall be kept clean and free from obstructions. Any deviation from this practice shall have prior approval from the District.
- B. The Contractor shall repair any damage to new or existing facilities resulting from work done as part of this contract at no cost to the District.

1.18 FINISHING WORK

- A. Upon completion of all construction and prior to the final inspection, all work shall be finished as specified in Section 22 of the State Standard Specifications, except as modified or supplemented in the following paragraphs:
 - 1. Finishing work shall comprise cleaning the entire project area, including all roads, ditches, plant sites, material site, right-of-way, easements, areas disturbed by Contractor's operations and occupied or affected by him in connection with the work, all rubbish, excess material, falsework, temporary structures and equipment, and shall include furnishing all labor, materials, tools, equipment, and incidentals, and doing all work involved in finishing the entire project. Remove all temporary warning, regulatory, and guide signs prior to final acceptance of contract by the Owner.
 - 2. Full compensation for finishing work shall be considered as included in the prices paid for other items for work, and additional or separate compensation will be allowed therefore.
 - 3. Project final inspection and acceptance of all work will occur after an inspection attended by the District, Contractor, Sacramento County Field Inspector and the Owner's Representative. All items needing correction or repair after the inspection shall be completed prior to final acceptance by the District.

1.19 RECORD DRAWINGS AND OPERATING MANUALS

- A. Prior to the time of completion and final acceptance by the District, the Contractor shall record, on the reproducible drawings, all changes made during construction, label these drawings "As-Built Drawings" and deliver to the District and/or applicable agency.
- B. Contractor shall provide operations and maintenance data as specified in the Contract Documents to the District prior to final acceptance.

1.20 GEOTECHNICAL SOILS REPORT

- A. No geotechnical report has been prepared for this project.

1.21 STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

A. Due to the size of the project (0.09 acres) a SWPPP is not required for the project.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01 11 30

MATERIALS AND EQUIPMENT

PART 1 – GENERAL

1.01 STORAGE OF MATERIALS

- A. Materials shall be stored in such a manner as to ensure the preservation of their quality and fitness for the Work. When considered necessary by the District, materials shall be placed on platforms or other hard, clean surfaces, and covered when directed.
- B. Materials shall be stored so as to facilitate inspection. Storage areas shall be suitably fenced, if necessary to protect the public or the material.
- C. Unless otherwise designated in the General Requirements, locations and arrangements for storage sites for materials and equipment outside the limits of work, shall be selected and maintained by the Contractor at his expense. Full compensation for furnishing such storage sites as may be necessary or required by the Contractor shall be considered as included in the price bid and no additional compensation will be allowed therefore. The District shall be specifically exempted in any agreement from any liability incurred from the use of private property for construction purposes. Use of portions of the project site for materials and equipment storage shall be permitted only upon the approval of the District.

1.02 HAZARDOUS MATERIALS

- A. The storage and handling of potential pollution causing and hazardous materials, including but not necessarily limited to, gasoline, oil and paint shall be in accordance with all local, state and federal requirements. All hazardous materials shall be stored and handled in strict accordance with the Material Safety Data Sheets for the products and as dictated by any State and Federal regulations. Material Safety Data Sheets shall be submitted to the District prior to the delivery of materials to the project.

1.03 MATERIAL AND EQUIPMENT SUBSTITUTIONS

- A. In preparing these Contract Documents, the Design Consultant has named those products, which to its knowledge meet the Specifications and are equivalent in construction, functional efficiency, and durability.
- B. Wherever catalog numbers and specific brands or trade names preceded by "similar and equal" or followed by the designation "or equal" are used in conjunction with a designated material, product, thing, installation, or service mentioned in these Contract Documents, they are used to establish the standards of quality and utility required.
- C. The first-named manufacturer is the basis for the project design and the use of alternative-named or unnamed manufacturer's products proposed by the Contractor may require modifications in the project design and construction. Where only one

product has been named by brand, it is the only brand, trade name, or manufactured product known to the Design Consultant that meets these Specifications.

- D. Wherever catalog numbers and specific brands or trade names not preceded by designation "similar and equal" nor followed by the designation "or equal", are used in conjunction with a designated material, product, thing, installation, or service mentioned in these Contract Documents, to ensure compatibility with existing facilities, no substitutions will be favorably reviewed.

1.04 SUBSTITUTIONS

- A. Substitutions which are equal in quality, appearance and utility to those specified will be permitted, subject to the following provisions. For this purpose, the Contractor shall submit to the Construction Manager, as identified by the District, a typewritten list containing a description of each proposed substitute item or material at the time of bidding only. Sufficient data, drawings, samples, literature, calculations, or other detailed information that demonstrates to the Design Consultant that the proposed substitute is equal in quality, appearance and utility to the material specified shall be appended to this list. The Design Consultant will favorably review in writing such proposed substitutions as are, in its opinion, equal in quality to the items or materials specified.
- B. Failure of the Contractor to submit proposed substitutions for review in the manner described above and within the time prescribed shall be sufficient cause for rejection by the District of any substitutions otherwise proposed.

1.05 MODIFICATIONS AND COSTS

- A. If alternative named or substitutions are proposed by the Contractor and favorably reviewed by the Design Consultant, the Contractor is responsible for providing, at no additional cost to the District, any electrical, mechanical, structural, or other related changes or testing that may be required to accommodate or provide the particular material or equipment the Contractor desires to use. Any deviation from the Contract Documents resulting from the type of material or equipment to be used shall not be the basis for any "extra charges" above and in excess of the original bid price of the work.
- B. The Contractor is responsible for all additional costs to the District, and its agents and representatives, for evaluation of data submitted by the Contractor for alternative named or substitutions and any redesign necessary. The District shall deduct said costs from the Contract monies due the Contractor.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 01 26 13

REQUESTS FOR INTERPRETATION

PART 1 – GENERAL

1.01 SCOPE

- A. This section sets forth procedures for requesting interpretation of the Contract Documents, and conditions under which such requests will be considered, after award of contract (during construction).

1.02 WORK INCLUDED

- A. Furnish all labor, materials, services, equipment and appliances required to perform all work to complete the Contract, including these major items:

- B. RELATED WORK IN OTHER SECTIONS

- 1. All other related applicable and pertinent sections.

1.03 SUBMITTALS

- A. Provisions: Comply with SECTION 01 33 00 – SUBMITTAL PROCEDURES

- B. Submit the “Request for Interpretation” standard form as provided by the Contractor, and as approved by the District, conforming to the requirements herein, or submit the form as provided by the District.

1.04 REQUESTS FOR INTERPRETATION

- A. Submit a Request for Interpretation to the Owner’s Representative and District when:

- 1. An unforeseen condition or constructability question occurs.
 - 2. Questions regarding the Contract Documents arise.
 - 3. Information not found in Contract Documents is required.

- B. Do not use RFI process for the following purposes:

- 1. To request approval of submittals.
 - 2. To request approval of substitutions.
 - 3. To request changes to the Contract Documents and to confirm action taken by the Contractor for requested changes/substitutions to the Contract Documents.

C. Assumption of Prior Knowledge

1. Instructions to Bidders for this work states requirements that, prior to submitting a Bid, Bidders shall become thoroughly familiar with the proposed Contract Documents and that they request and secure clarification of all matters on which there may be any question as to design intent.
2. Reasons for these requirements include the District's recommendation:
 - a. That Bidders have complete and adequate knowledge of the proposed work in order to propose a fair and proper bid price;
 - b. To avoid unnecessary time-consuming and effort consuming requests for information during progress of the Work;
 - c. To not discuss frivolous requests for information while encouraging acquisition of complete familiarity with the Contract Documents.
3. However, the Owner's Representative recognizes that information may inadvertently have been omitted from the Contract Documents or require clarification of alleged conflict or error of information, and the following procedures are established for requesting such information.

D. Procedures

1. During the course of construction, direct RFI's to the Owner's Representative and District by e-mail. It is the sender's responsibility to verify that the RFI is received by the Owner's Representative and District.
 - a. Complete a "Request for Interpretation" form and deliver the completed form to the Owner's Representative.
 - b. The Owner's Representative and/or District will conduct the necessary research and consultation with the responsible party.
 - c. The Owner's Representative or District will respond to the request for interpretation within 15 working days, giving proper information to be supplied to the Contractor.
2. The Contractor's assessment of the potential problem and solution is essential to the Progress of the Work. The nature of the work mandates a cooperative effort between the Owner's Representative, District and Contractor, wherein field conditions may dictate solutions. The Contractor is encouraged to include possible solutions with the submission of an RFI.

E. Submit RFI's within a reasonable time frame so as not to interfere with or impede progress of work. Keep number of RFI's to a minimum and as absolutely necessary.

1. When an answer to an RFI has an effect on cost or time, notify Owner's Representative and District in accordance with the Contract Documents at time of submittal. Notification shall occur prior to commencing such work, so that the change order process can be initiated.
2. At the time of submitting an RFI, alert Owner's Representative and District to the time available before the response will cause an impact to the Project.

3. The Owner's Representative or District will respond in writing to each RFI, within a reasonable period of time. If the Owner's Representative requires clarification to the RFI, the reasonable period of time required for Owner's Representative or District's response will begin when clarification is received from the Contractor. If the Owner's Representative or District requires more than five (5) working days, the Owner's Representative will inform the Contractor in a timely manner and explain the reason why additional time is required.

1.05 REQUEST FOR INTERPRETATION FORMS

A. Forms shall contain the following information:

1. Project name as listed in the Contract Documents.
2. Contractor's name, address, telephone and fax numbers, project number.
3. Owner's Representative name address, telephone and fax numbers, project number.
4. RFI No. and Date. Number RFI's consecutively.
5. Response requested from:
6. Contract Documents reference.
7. Specification reference.
8. Reply by:
9. Request: Reason for the RFI, clear and concise explanation of information or clarification requested.
10. Submitted by:
11. Response: Space for reply
12. Cost/Time Implications.

B. In all cases where an RFI is issued to request clarification of coordination issues, such as clearances, routing, specific locations of work, and similar items, Contractor shall fully lay-out a suggested solution using drawings or sketches, drawn to scale, and submit same with RFI.

C. RFI's from subcontractors or material suppliers shall be submitted through and reviewed by the Contractor prior to submittal to the Owner's Representative.

D. Prepare and maintain an RFI log. Update on a weekly basis or as required. Log RFI number, brief description of content or subject discussed, date submitted and date answered. Furnish copy when so requested by the Owner's Representative.

1.06 IMPLEMENTATION

A. If the Contractor believes that a clarification by the Owner's Representative may result in a change in Contract Price, the Contractor shall not proceed with the work indicated by the RFI until a Change Order Request is issued to and approved by the

District, unless indicated otherwise by the Owner's Representative.

- B. If the Contractor believes that a clarification by the Owner's Representative results in additional cost, the Contractor shall identify in the RFI the basis of the Contractor's bid as it relates to the RFI.
- C. Answered RFI shall not be construed as approval to perform extra work.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.01 RELATED REQUIREMENTS

- A. County of Sacramento Standard Construction Specifications.
- B. Submittals shall be made as required by other Sections of these Technical Specifications.

1.02 STANDARD COMPLIANCE

- A. When materials or equipment must conform to the standards of organizations such as, but not limited to, the American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), National Electrical Manufacturers Association and Underwriter's Laboratories (UL) (NEMA), documents showing, or proving, conformance shall be submitted.
- B. If an organization uses a label or listing to indicate compliance with a particular standard, the label or listing will be acceptable evidence, unless otherwise specified in the individual sections. In lieu of the label or listing, the Contractor shall submit a certificate from an independent testing organization, which is competent to perform acceptable tests, and is approved by the Owner's Representative. The certificate shall state that the item has been tested in accordance with the specified organization's standard.
- C. For materials and equipment whose compliance with organizational standards or specifications is not regulated by an organization using its own listing or label as proof of compliance, a certificate of compliance from the manufacturer shall be submitted for approval. The certificate shall identify the manufacturer, the product, and the referenced standard and shall state that the manufacturer certifies that the product conforms to all requirements of the project specification and of the referenced standards listed.

1.03 ADMINISTRATIVE PROCEDURES

- A. Sequentially number the submittals. Revised submittals shall be designated by the original number and a sequential alphabetic suffix.
- B. Submittals may be submitted electronically (preferred) or in hard copy form. Submittals will be returned in the form received. Hard copy submittals will be scanned, and a single printed copy of the scanned submittal will be returned, unless requested otherwise by the Contractor in writing with the submittal.
- C. Apply Contractor's stamp, signed or initialed certifying that review, verification of products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Contract Documents.

- D. Schedule submittals to expedite the Project, and deliver to Owner's Representative and District. Coordinate submission of related items.
- E. For each submittal for review, allow up to 30 calendar days excluding delivery time to and from the Contractor. If selected submittals must be returned in a timely fashion to meet Project schedules, notify the Owner's Representative and District during the preconstruction meeting of specific submittals that will require an expedited review. Select submittals shall be reviewed within 10 calendar days.
- F. Transmit each item under cover letter or form. Identify Project Contractor, subcontractor, major supplier; identify pertinent contract documents sheet(s) and detail number; and Specification section number, as appropriate. Identify deviations from Contract Documents. Provide space for Contractor and Owner's Representative review stamps.
- G. Comply with progress schedule for submittals related to Work progress. Coordinate submittal of related items.
- H. After Owner's Representative and District's review of submittal, revise and resubmit identifying changes made since previous submittal.
- I. Distribute copies of reviewed submittals to concerned persons, instruct recipients to promptly report in writing any inability to comply with provisions.

1.04 CONSTRUCTION PROGRESS SCHEDULES

Not Used

1.05 SHOP DRAWINGS

- A. Shop drawing shall clearly indicate and describe proposed product materials, connections, equipment, finish, color and installation.
- B. When products require building department approval and permitting, shop drawings shall include plans which have been signed and stamped by a California-licensed Structural Engineer. This is in addition to the Item A noted above.
- C. Approvals must be granted prior to ordering product.

1.06 MANUFACTURER'S DATA

- A. Submittals for each manufactured item shall be comprised of manufacturer's descriptive literature, contract documents, diagrams, performance and characteristic curves and catalog cuts. Manufacturer's name, trade name, model or catalog number, nameplate data, size, layout dimensions, capacity, project specification references, and any other additional information necessary to establish contract compliance shall be clearly indicated.
- B. Mark each copy to clearly identify applicable products, models, options, and other data; supplement manufacturers' standard data to provide information unique to the Work. Include manufacturers' installation instructions when required by the

Specification section. Failure to mark applicable products and to cross out non-applicable products shall cause rejection of the entire submittal.

C. Manufacturer's product data submittals shall include, but not be limited to:

1. Concrete mix design
2. Expansion joint materials
3. Finish materials and colors
4. Bocce court surfacing
5. Bocce court surfacing silica sand infill
6. Bench
7. Tubular Steel Fencing & Gate
8. Detectable Warning Surface/Truncated Domes

1.07 MANUFACTURERS INSTALLATION INSTRUCTIONS

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing in quantities specified for Product Data.
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.08 MANUFACTURERS CERTIFICATES

- A. When specified in individual specification sections, submit certification by manufacturer in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or product, but must be acceptable to Owner's Representative and/or District.

1.09 SAMPLES

- A. Submittals for each item shall include manufacturer's name, trade name, model or catalogue number, name plate data, size, layout dimensions, capacity, project specification references and any additional information necessary to establish contract compliance shall be clearly indicated.
- B. Mark each copy to clearly identify applicable products, models, options, and other data; supplement manufacturers' standard data to provide information unique to the Work. Include manufacturers' installation instructions when required by the Specification section. Failure to mark applicable products and to cross out non-applicable products shall cause rejection of the entire submittal.
- C. Submit the quantity of submittal copies that the Contractor requires plus six additional copies, which will be retained by the District and the Owner's Representative.

D. Samples shall be provided for:

1. Bocce court surfacing
2. Bocce court surfacing silica sand infill
3. All other materials as required by the Construction Drawings.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

3.01 SUBMITTAL PROCEDURE

- A. At least (thirty) 30-days prior to the Contractors need for approval, Contractor shall forward to the Owner's Representative and District all submittals required by the individual Sections of the Specifications.
- B. All submittals shall be identified by submittal number on the letter of transmittal. Specification number shall also be identified on the letter of transmittal. Submittals shall be numbered consecutively and resubmittals shall have a letter suffix. For example:
 1. 1st submittal: 2
 2. 1st resubmittal: 2A
 3. 2nd resubmittal: 2B, etc.
- C. Review of Contractor's Information
 1. When review and checking for acceptance is required of any drawing, or information regarding materials and equipment, the Contractor shall prepare or secure, and submit for review, the quantity of submittal copies, which the Contractor requires, plus, six additional copies that will be retained by the Project Owner's Representative and the Owner's Representative.
 2. Within three (3) weeks after receipt of said submittal copies the Owner's Representative or District will return the marked copies indicating one of the following four (4) responses:
 - a. If review and checking indicates no exceptions, copies will be returned marked "NO EXCEPTIONS TAKEN" and work may begin immediately on incorporating the material and equipment covered by the submittal into the work.
 - b. If review and checking indicates limited corrections are required, copies will be returned marked "MAKE CORRECTIONS NOTED". Work may begin immediately on incorporating into the work the material and equipment covered by the corrected submittal.
 - c. If review and checking indicates insufficient, or incorrect data, has been submitted, copies will be returned marked "REVISE AND RESUBMIT". No

work may begin on incorporating the material and equipment covered by this submittal into the work until the submittal is revised, resubmitted, and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED".

- d. If review and checking indicates the material and equipment submittal is unacceptable, copies will be returned marked "SUBMIT SPECIFIED ITEM" or "REJECTED". No work may begin on incorporating the material and equipment covered by this submittal into the work until a new submittal is made and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED".
3. Approval by the Owner's Representative and/or District shall not relieve Contractor from responsibility for any errors or omissions in such drawings; or from responsibility of complying with requirements of this Contract.
4. If shop drawings show variations from Contract requirements, Contractor shall describe such variations in writing, separate from the drawings, at time of submission. All such variations must be approved by the Owner's Representative and/or District.

D. Contractor Submittals

1. Items to be submitted are specified in individual Sections of these Technical Specifications.
2. Submittals for each Section shall be bound together in one book. Individual items shall be sequentially numbered in a clear, legible, & consistent manner. Submittals that are related to, or affect each other shall be forwarded simultaneously as a package to facilitate coordinated review. Uncoordinated submittals will be rejected.
3. Do not combine unrelated materials in the same submittal. Submittals shall be arranged in same order as they appear in the Specification Section. Items shall be clearly marked with the same identification number as indicated on the drawings. The Contractor shall include an appropriate submittal time within each item of work on the Construction Schedule.

3.02 PROJECT RECORD DRAWINGS

- A. During the prosecution of the Work, using colored ink, make changes on a set of clean blue line prints of original tracings. Show all changes and revisions to the original design that affect the permanent structures and will exist in the completed work.
- B. Reference underground utilities to semi-permanent or permanent physical objects. Reference water, piping, conduit and electric lines to corners of structure. Include schematic diagrams for all electrical equipment with terminal numbers shown. These prints shall have all dimensions and corrections initialed by the Owner's Representative and/or District.
- C. Upon completion of the Project, those revisions to show changes made in actual

construction from that shown on Contract Documents shall be legibly and neatly transferred to a set of reproducible full-sized drawings. These drawings shall be provided to the District.

END OF SECTION

SECTION 02 41 00

DEMOLITION

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work includes, but is not limited to the following:
1. The Contractor shall provide all equipment, tools, materials, and labor necessary to complete the work.
 2. Completely coordinate with work of all other trades.
 3. Provide protection for all existing objects or conditions designated on the drawings to remain on the site.
 4. Provide protection to prevent injury or damage to persons or adjacent properties.
 5. Remove and dispose of demolished materials from the site.
 6. Comply with applicable codes and ordinances concerning demolition operations.
- B. Definition: The term "demolition", as used herein, includes the removal and disposal of all existing objects (except for those objects designated to remain) down to the existing grade level or subgrade level to the extent indicated or as otherwise required to permit new construction and all other work as described in this Section necessary to complete all Demolition Work.
- C. Use of explosives will not be permitted.

1.02 PERMITS, ORDINANCES, ETC.

- A. Procure and pay for all necessary permits or certificates required to complete the Demolition Work specified. Make any and all required notifications and comply with all applicable Federal, State, and Local ordinances concerning demolition operations.

1.03 JOB CONDITIONS

- A. Visit the site and examine the existing conditions and observe the conditions under which the work is to be performed. Notify the Owner's Representative and District of unsatisfactory conditions and do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Owner's Representative and District. Note all conditions as to character and extent of work involved.

1.04 PROTECTION

- A. Execute all Demolition Work in an orderly and careful manner with due consideration for any existing condition designated to remain. Provide protection to preserve existing items indicated to remain and to prevent injury or damage to persons or adjacent properties.
- B. Use all means necessary to protect existing conditions designated to remain and adjacent properties. Avoid any encroachment on adjacent properties. In the event of damage or loss to any existing condition designated to remain or adjacent properties, immediately make all repairs and replacements necessary to the approval of the Owner's Representative and District at no additional cost to the District.
- C. Do not interfere with the normal traffic on roads, streets, walks, or use of adjacent properties. Provide alternate routes around closed or obstructed traffic ways as required by governing regulations.
- D. Adjacent streets and sidewalks shall be kept free of mud, dirt or similar nuisances resulting from demolition operations.
- E. Protect tops, trunks, and roots of existing trees and vegetation which are to remain from any physical damage. Protect trees and vegetation with barriers before any construction work is started; remove barriers on completion of Contract. Do not permit storage of materials, stockpiles or heavy equipment within the drip line of remaining trees. Use qualified workmen to remove any interfering branches of trees to remain without injury to trees. Replace trees that have been damaged and cannot be restored to full growth at no additional cost to the District.

1.05 CUTTING AND PATCHING

- A. Cut existing sidewalks, roads, and curbs as required to complete demolition work. Pavement shall be cut vertically along straight lines forming the edges of the demolition work and so as not to damage the adjacent pavement. Repair all pavement as specified in Sections of the specification covering the applicable trades.

1.06 DUST CONTROL

- A. Use all means necessary to prevent the spread of dust during performance of the work of this Section; thoroughly moisten all surfaces as required to prevent dust being a nuisance to the public, neighbors, and concurrent performance of other work on the site.

PART 2 - PRODUCTS

2.01 OTHER MATERIALS

- A. All other materials not specifically described but required for proper completion of the work of this Section shall be as selected by the Contractor subject to approval by the District.

PART 3- EXECUTION

3.01 PREPARATION

A. Notification

Notify the District at least two (2) full working days prior to commencing the work of this Section.

B. Site Observation

1. Prior to all work of this Section, carefully observe the entire site for all objects designated to be removed and to be preserved.
2. Contact the Underground Service Alert (U.S.A.) at 811 to stake and mark the location of all existing utilities prior to the beginning of work.
3. Locate all existing utility lines indicated on the Contract Documents to remain, and determine the requirements for their protection.
4. Locate, if any, all existing utility line indicated on the Contract Documents to be disconnected and capped, and determine all requirements for disconnecting and capping.

C. Clarification

1. The Contract Documents do not purport to show all objects existing on the site.
2. Before commencing the work of this Section, verify with the Project Manager all objects to be removed and all objects to preserve.

D. Scheduling

1. Schedule all work in a careful manner with all necessary consideration for adjacent properties and the general public.
2. Avoid interference with the use of, and passage to and from, adjacent properties.
3. Conduct operations so as not to interfere with the use of adjacent roads, streets, drives, walks, service lines, etc.

E. Disconnection of Utilities

1. Before starting site construction, arrange for the disconnection of all utility lines designated to be removed, relocated, or capped with the appropriate utility company. Utility company services for this work shall be paid for by the Contractor.
2. Refer to the Irrigation Plans for information pertaining to disconnection or modification of the existing irrigation system.

F. Protection of Utilities

1. Retain and protect in operating condition all active utilities traversing the site designated to remain.

3.02 DEMOLITION OF OBJECTS

- A. Remove and dispose of all existing objects (except for those objects designated to remain) down to existing grade level or subgrade level to the extent indicated on the plans or as otherwise required to permit new construction.
- B. Remove native on-site grasses and roots to a minimum depth of two inches below existing grade.

3.03 REQUIREMENTS FOR REMOVAL OF CONCRETE PAVEMENT

- A. Concrete curbs, gutters, cross gutters, driveways and walks: Remove concrete to neatly sawed edges, with saw cuts made to a minimum depth of one and one-half (1-1/2) inches. Concrete sidewalk or driveway to be removed shall be neatly sawed in straight lines, either parallel to the curb or at right angles to the alignment of the sidewalk. No section to be replaced shall be smaller than thirty (30) inches in either length or width. If the saw cut in sidewalk or driveway fall within thirty (30) inches of a construction joint, expansion joint, cold joint or edge, the concrete shall be removed to the joint or edge, except that where the saw cut would fall within twelve (12) inches of a score mark, the saw cut shall be made in and along the score mark. Curb and gutter shall be sawed to a depth of one (1) inch below the bottom surface in a neat line at right angles to the curb face.

3.04 BACKFILL AND COMPACTION

- A. All excavations left by the demolition work shall be filled and compacted to make the surface at these points conform in contour and density to that of the surrounding ground, and as specified in SECTION 31 23 33 – TRENCHING AND BACKFILLING.

3.05 STORAGE OF ITEMS TO BE RELOCATED

- A. Coordinate with the District.

3.06 DISPOSAL OF DEBRIS

- A. All material removed under this Contract, which is not to be salvaged or reused, or otherwise specified on the Plan shall become the property of the Contractor and be promptly disposed of. The District will provide dumping facilities adjacent to the project site for the Contractor's use. The Contractor is responsible for disposing all items specified to be removed and locating them in the District-provided dumping facilities.
- B. Burning of refuse material on the site will not be permitted.

END OF SECTION

SECTION 05 75 00

METAL FABRICATIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.

1.02 SUMMARY

- A. This section includes the following metal fabrications:

- 1. Rough hardware.
- 2. Miscellaneous metal fabrications.

1.03 SUBMITTALS

- A. Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for products used in miscellaneous metal fabrications, including paint products and grout.
- C. Shop drawings detailing fabrication and erection of each metal fabrication indicated. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide templates for anchors and bolts specified for installation under other sections.

1.04 QUALITY ASSURANCE

- A. Fabricator Qualifications: Firm experienced in successfully producing metal fabrications similar to that indicated for this Project, with sufficient production capacity to produce required units without causing delay in the Work.
- B. Installer Qualifications: Arrange for installation of metal fabrications specified in this section by same firm that fabricated them.
- C. Qualify welding processes and welding operators in accordance with AWS D1.1 "Structural Welding Code - Steel," D1.3 "Structural Welding Code - Sheet Steel", and D1.2 "Structural Welding Code - Aluminum."

1.05 PROJECT CONDITIONS

- A. Check actual locations of other construction to which metal fabrications must fit, by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of Work.

1. Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with fabrication of products without field measurements. Coordinate construction to ensure that actual opening dimensions correspond to guaranteed dimensions. Allow for trimming and fitting.

PART 2 - PRODUCTS

2.01 FERROUS METALS

- A. Metal Surfaces, General: For metal fabrications exposed to view upon completion of the Work, provide materials selected for their surface flatness, smoothness, and freedom from surface blemishes. Do not use materials whose exposed surfaces exhibit pitting, seam marks, roller marks, rolled trade names, roughness, and, for steel sheet, variations in flatness exceeding those permitted by reference standards for stretcher-leveled sheet.
- B. Steel Plates, Shapes, and Bars: ASTM A-36.
- C. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.
- D. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for the metal alloy to be welded.

2.02 FASTENERS

- A. General: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade, and class required.
- B. Bolts and Nuts: Regular hexagon head type, ASTM A-307, Grade A.
- C. Lag Bolts: Square or hex head type, ASME B18.2.1.
- D. Machine Screws: Cadmium plated steel, ASME B18.6.3.
- E. Plain Washers: Round, carbon steel, ASME B18.22.1.
- F. Drilled-In Expansion Anchors: Wedge type expansion anchors with current ICBO approval as indicated or approved equal.

2.03 PAINT

- A. Shop Primer for Ferrous Metal: Manufacturer's or fabricator's standard, fast-curing, lead-free, universal modified alkyd primer selected for good resistance to normal atmospheric corrosion, for compatibility with finish paint systems indicated, and for capability to provide a sound foundation for field-applied topcoats.

2.04 FABRICATION, GENERAL

- A. Form metal fabrications from materials of size, thickness, and shapes indicated but not less than that needed to comply with performance requirements indicated. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of each metal fabrication.
- B. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.
- C. Shear and punch metals cleanly and accurately. Remove burrs.
- D. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- E. Remove sharp or rough areas on exposed traffic surfaces.
- F. Weld corners and seams continuously to comply with AWS recommendations and the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matches those adjacent.
- G. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.
- H. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.
- I. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- J. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware, screws, and similar items.

2.06 STEEL AND IRON FINISHES

- A. Galvanizing: For those items indicated for galvanizing, apply zinc-coating by the hot-dip process compliance with the following requirements:
 - 1. ASTM A 153 for galvanizing iron and steel hardware.
 - 2. ASTM A 123 for galvanizing both fabricated and un-fabricated iron and steel products made of uncoated rolled, pressed, and forged shapes, plates, bars, and strip 0.0299 inch thick and heavier.
- B. Preparation for Shop Priming: Prepare uncoated ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:
 - 1. Exteriors (SSPC Zone 1B): SSPC-SP6 "Commercial Blast Cleaning."
 - 2. Interiors (SSPC Zone 1A): SSPC-SP3 "Power Tool Cleaning."
- C. Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finish or to be embedded in concrete, unless otherwise indicated. Comply with requirements of SSPC-PA1 "Paint Application Specification No. 1" for shop painting.
- D. Prime and paint with two coats of exterior paint all metal fabrications.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, including concrete inserts, sleeves, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete construction. Coordinate delivery of such items to project site.

3.02 INSTALLATION

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; through-bolts, lag bolts, wood screws, and other connectors as required.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installation of miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete or similar construction.

- D. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.
- E. Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, methods used in correcting welding work, and the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matches those adjacent.

3.03 ADJUSTING AND CLEANING

- A. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 requirements for touch-up of field painted surfaces.
 - 1. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.
- B. For galvanized surfaces clean welds, bolted connections and abraded areas and apply galvanizing repair paint to comply with ASTM A 780.

END OF SECTION

SECTION 06 10 53

WOOD CONSTRUCTION

PART 1 - GENERAL

1.01 CONDITIONS

The general provisions of the Contract, including General and Supplementary Conditions and General Requirements apply to the work specified in this Section.

1.02 DESCRIPTION

A. Provide all materials, tools, equipment, labor and supervision required to complete the wood work as indicated on the Contract Documents and specified herein.

B. Related work specified in other Sections

1. SECTION 05 75 00 – METAL FABRICATION

1.03 REFERENCES AND STANDARDS

A. Douglas Fir: As graded by a certified grading agency approved by the USDA American Lumber Standards Committee.

B. Lumber: Grade stamp to contain symbol of grading agency, mill number of name, grade of lumber, species or species grouping or combination designation, rules under which graded, where applicable and condition of seasoning at time of manufacture.

C. Preservative Treated Wood: Pressure-treating of lumber shall conform to the American Wood Preservers' Association (AWPA), Standard practices and regulations.

D. Abbreviations:

AD - air dried	KD - kiln dried
VG - vertical grain	FG - flat grain
DF - Douglas Fir	PT - pressure treated

All wood shall be surfaced four sides (S4S).

1.04 QUALITY ASSURANCE

A. Provide skilled workmen experienced with the type of construction involved and the materials and techniques specified.

B. Carefully select wood members so that knots or other defects shall not interfere with proper construction. Lumber shall not be acceptable, whether installed or not, if it has warpage, twisting, or bowing.

- C. Accurately cut, fit and securely connect together all items to produce a plumb, true, rigid installation. Do not splice individual wood members between column supports, unless otherwise indicated on Drawings.

1.05 PROTECTION

- A. Lumber and timber shall be stored in neat stacks at the site unless it is to be used immediately. All lumber and timber shall be piled so that it may be readily inspected, and shall be handled in a manner that will avoid injury or breakage.
- B. Structural timber shall be neatly piled on skids above ground and shall be protected from the sun when necessary to prevent warping. Treated timber shall be handled with rope slings. Cant hooks, peaveys, or other sharp instruments shall not be used in handling treated timber. Undue injury in handling will be cause for rejection.

1.06 MEASUREMENTS

- A. Verify all dimensions indicated on the Drawings by taking field measurements; proper fit and attachment of all components is required. Before commencing work, check all lines and levels indicated and such other work as has been completed. Should there be any discrepancies, immediately notify the City. In event of failure to do so, the Contractor shall be responsible for correction of any errors at his cost.

1.07 COORDINATION

- B. Coordinate with other trades whose work relates to the complete installation of work.

PART 2 - PRODUCTS

2.01 GENERAL

All lumber shall conform to the allowable characteristics permitted within the applicable grading rule. No splits, checks, holes, decay or other irregularities will be permitted except those characteristic of that grade.

2.02 LUMBER SPECIES

- A. 2" x 6" Bocce bumper board lumber shall be Douglas Fir, No. 1 Grade, pressure treated, surfaced four sides (S4S).

2.03 CONNECTION HARDWARE

- A. If lumber is noted as "donated" on the Plans, Contractor shall provide all connection hardware and equipment required to complete installation.
- B. Framing connectors: Simpson, or equal, shall be galvanized.
- C. Nails, etc. shall be galvanized or corrosion resistant.

- D. Bolts shall be galvanized hex-head bolts with galvanized round, flat washer, galvanized lock-washer and hex-head nut.
- E. Lag screws shall be hex-head lag screws with galvanized round, flat washer.

PART 3 - EXECUTION

3.01 WORKMANSHIP

- A. Workmanship shall be first-class throughout. All lumber and timber shall be accurately cut and framed to a close fit and shall have even bearing over the entire contact surfaces. All joints shall be square and tight unless otherwise shown. **No** shimming will be permitted in making joints. Work shall be free of hammer marks, dents, or other disfiguration. Install all horizontal members with the crown (outside of grain curvature) facing up.

3.02 FASTENERS

A. Bolts

1. Holes for bolts shall be bored with a bit 1/16" larger than the bolt.
2. Bolts 5/8" and less in diameter shall be fitted with cut washers. All bolts and lag screws over 5/8" in diameter shall be fitted with cast or malleable iron washers, unless otherwise shown on the Plans. Select bolt length to fit situation. Where bolts project beyond nut, cut off 1/8" from nut and paint within 24 hours with heavy coats of Zinc Chromate primer paint and one (1) coat of Aluminum finish paint (to match the galvanized bolt finish unless otherwise noted).
3. Bolt threads shall not bear on wood; use washers under head and nut where both bear on wood; use lock-washers under all nuts.
4. Tighten bolts securely and re-tighten prior to final inspection.

B. Lag Screws

1. Holes for lag screws shall be bored with a bit not larger than the base of the thread.
2. Use flat washers under lag screws.
3. Tighten screws securely and re-tighten prior to final observation.

A. Nailing

1. Nails and other hardware shall be sized as per U. B .C. Nailing Schedule, and shall be seated flush unless otherwise indicated on the Plans.
2. Any wood member split during nailing shall be replaced at no additional cost to the Owner.

3.03 CLEAN-UP

- A. Keep the premises free from the accumulation of sawdust, cut ends, and debris. Upon completion of the work, thoroughly broom clean and remove debris from the job site.

END OF SECTION

SECTION 12 92 00

SITE FURNISHINGS AND EQUIPMENT

PART 1 - GENERAL

1.01 CONDITIONS

- A. The general provisions of the Contract, including General and Supplementary Conditions and General Requirements apply to the work specified in this Section.

1.02 DESCRIPTION

- A. Work includes but is not limited to the following:
 - 1. Furnish all labor, materials, tools, equipment, operation or methods listed, mentioned or scheduled on the Contract Documents and/or herein specified in this Section.
 - 2. Although such Work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
 - 3. Completely coordinate with Work of all other trades.

1.03 QUALITY ASSURANCE

- A. All products or items described herein shall be new, unless otherwise specified, and shall be from the specified manufacturer or approved equal. Products shall be complete in all respects, properly installed, and in perfect working order.

1.04 QUALIFICATION OF INSTALLER

- A. Installer shall be thoroughly trained and experienced in the skills required, and shall be completely familiar with the products and their installation as specified on the Contract Documents and in this Section. Installer shall be present at all times during progress of Work of this Section and shall direct all Work performed.

1.05 COORDINATION

- A. Contractor shall be charged with the responsibility of making arrangements for the coordination of his construction operations with those of all others on the job, and he shall permit other forces so engaged to accomplish their portion of the Work without undue interference or delay.
- B. Contractor shall place order for all site furnishings and equipment immediately after award of bid to ensure adequate time for manufacturing, shipping and installation. If any materials or equipment are not ordered in time, additional costs made by equipment manufacturer's to their equipment in time to meet construction schedule together with any special handling costs, shall be borne by the Contractor. **NO** project extension shall be granted due to improper lead time in ordering.

1.06 SUBMITTALS

- A. Submit six (6) copies of manufacturer's catalog cuts off all products for Owner's Representative and District approval. Catalog cuts shall clearly identify product, finishes, color, schedule and installation.
- B. All approvals must be granted prior to ordering product.

PART 2 - PRODUCTS

2.01 Bocce Court Surfacing

- A. Provide "Bocce Pro" synthetic turf bocce court surfacing with ArmorLoc 3L dual layer polypropylene primary backing and SilverBack polyurethane backing, or approved equal. Pile height shall be 9/16" max. Material weight shall be 63 oz. max. Product shall be available in 12' wide roll width min.
- B. Provide silica sand infill for bocce court surfacing per manufacturer's recommendations.
- C. Bocce court surfacing installed by this Contractor shall be warranted for eight (8) years minimum from the date of installation against defects in material or workmanship, resulting in premature wear, deterioration, and excessive fading / UV degradation during ordinary and normal use of the product(s). Vandalism and force majeure will not be covered under said warrantee. Contractor shall submit written warranty, by the installer, to the District prior to closeout of project and Contract. When defective material or workmanship is discovered requiring repair or replacement, all such repair work or replacement work shall be done by the Contractor at his own expense after written notification is given of such required repairs. However, if the Contractor fails to comply with the requirements of the above guarantee within reasonable time after notification is given, the District shall proceed to have the repairs made by others and shall be reimbursed by the Contractor at the Contractor's expense.
- D. Color shall be as noted on Plans.
- E. Bocce court surfacing manufactured by:
Synthetic Turf International
(800) 405-7455

And

Distributed by:
Rees Enterprises, Inc.
Synthetic Turf International – Northern California
(916) 257-7309

2.02 Bench

- A. Provide eight-foot (8') "160 Series" steel bench with horizontal slats (model #160-80), surface mounted, or approved equal. Contractor shall coordinate need for "memorial plaque" with District prior to ordering bench. If plaque is required, District shall provide Contractor with the necessary inscription information and Contractor shall coordinate memorial plaque design with manufacturer. Contractor shall provide District with manufacturer-produced cut sheet showing memorial plaque design, location on bench and inscription for District approval prior to ordering.
- B. Color: Powdercoated "Black".
- C. Bench manufactured by:
DuMor, Inc.
PO Box 142
Mifflintown, PA 17059-0142

And

Distributed by:
Ross Recreation Equipment
100 Brush Creek Road
Santa Rosa, CA 95404
(707) 538-3800

2.03 1" x 6" Recycled Plastic Bocce Bumper Board

- A. Provide Trex Select 1" x 6" recycled plastic bumper boards on short sides of court as indicated on the Contract Documents, or approved equal. Length, height and width (l x h x w) per detail.
- B. Color and board edge: Color and board edge to match finished 2" x 6" PT Douglas Fir Bocce Bumper Boards.
- C. Contractor shall provide all connection hardware and equipment required to complete installation.

2.04 Detectable Warning Surface

- A. Provide Detectable Warning Surface with truncated domes as indicated on the plans.
- B. Color: Traffic Yellow
- C. Detectable warning surface panel and truncated domes shall comply with California Building Code, latest edition, Chapter 11B requirements.

PART 3 - EXECUTION

3.01 GENERAL

- A. Work shall be set true to line and shall present a neat and finished appearance. Includes setting each item in its correct place, fastening it, connecting it, or incorporating it into other portions of work, as each item may require; testing and operating equipment to assure proper functioning. Furnish anchors and adhesives required for installing and attaching the equipment specified herein.
- B. Install all items per manufacturer's instructions and specifications.

3.02 INSTALLATION OF BOCCE COURT SURFACING

- A. Install bocce court surfacing over concrete pad as specified on Plans.
- B. Adhere to surface of concrete pad per manufacturer specifications and with manufacturer's specified commercial-grade adhesive.
- C. Check for creases in turf. If creases exist, remove them.
- D. Seams:
 - 1. Seaming shall be in strict compliance with the manufacturer's specifications.
 - 2. Contractor to determine layout of bocce court surfacing in order to minimize number of required seams (if any). Where seams are required, seams shall run in the same direction. Fiber or "grain" of the two pieces shall run in the same direction. Seams shall not be visible nor shall they affect the roll of the bocce ball on the court surfacing.
 - 3. Refer to manufacturer's specifications for more information regarding seaming.
- E. Apply silica sand infill at application rate recommended by manufacturer. Manufacturer recommends apply one (1) pound per square foot and testing performance. Performance shall be evaluated and determined solely by District. If performance is not desirable add silica sand up to a rate of two (2) pounds per square foot.

3.03 INSTALLATION OF BENCH

- A. Install as detailed and in conformance with the manufacturer's specifications.
- B. Install items level and plumb.

3.04 INSTALLATION OF 1" X 6" RECYCLED PLASTIC BOCCE BUMPER BOARD

- A. Install as detailed and in conformance with the manufacturer's specifications.
- B. Install items level and plumb.

3.05 INSTALLATION OF DETECTABLE WARNING SURFACE

- A. Install in conformance with the manufacturer's specifications.

B. Install in conformance with California Building Code, latest edition, Chapter 11B requirements.

C. Install items level and plumb.

3.06 PROTECTION

A. Adequately protect all work from damage by subsequent construction operations. Damaged work shall be replaced by Contractor and at Contractor's expense.

3.07 CLEAN-UP

A. Clean-up all site furnishing items. Repair damage to surfaces scratched during construction.

END OF SECTION

SECTION 31 22 19

FINISH GRADING

PART 1 - GENERAL

1.01 CONDITIONS

- A. The general provisions of the Contract, including General and Supplementary Conditions and General Requirements apply to the work specified in this Section.

1.02 SCOPE OF WORK

- A. Provide all labor, materials, services and equipment indicated on Contract Documents and/or herein specified to complete all Landscape Grading Work.
- B. Finish grading shall consist of scarifying and establishing finish grade to conform to the contours, grades, line and shapes as indicated on the Contract Documents, and insuring that all landscape areas are uniformly graded to an outlet.
- C. Rough grading and land alteration of existing topographic conditions to conform to the contours, grades, lines and shapes indicated on the Civil Drawings and are not part of this scope of work.

1.03 DEFINITIONS

- A. Subgrade: Surfaces upon which additional specified materials are to be placed, prepared or constructed.
- B. Rough grade: The establishment of grades to one-tenth (1/10) foot plus or minus tolerance of grades required to accomplish the Work described.
- C. Finish grade: The establishment of grades to a plus or minus tolerance of final grades as indicated on Contract Documents. Tolerances are specified in applicable sections of the specifications (i.e. landscape installation, concrete, pavements, etc.)
- D. Grading intent: Spot elevations (grades) and contours are indicated based on the best available data. The intent is to maintain constant slopes between spot elevations. If a spot elevation is determined to be in error, or the difference in elevation between points change, contact the Owner's Representative and District immediately for field adjustments of spot elevations.

1.04 JOB CONDITIONS

- A. Before submitting bid, visit the project site and examine the existing conditions under which the Work is to be performed. Note all conditions as to character and extent of Work involved. No request for additional payment due to failure to allow for working conditions shall be valid.

1.05 EXISTING UTILITIES

- A. Contractor is responsible to contact U.S.A. at 811 and mark the location of all existing utilities before commencing Work.
- B. Refer to the Contract Documents for information on proposed site utilities and their locations.
- C. Retain and protect in operating condition all active utilities traversing the site designated to remain.
- D. Where existing utilities not indicated on the Contract Documents are encountered, support, shore up, protect same and immediately contact the Owner's Representative for continuance and/or relocation of such services.

1.06 PROTECTION OF EXISTING CONDITIONS and ADJACENT PROPERTIES

- A. Use all means necessary to protect existing conditions designated to remain, newly constructed conditions and adjacent properties. Avoid any encroachment on adjacent properties.
- B. Prevent damage to existing benchmarks, pavement and utility lines. In the event of damage or loss, immediately make all repairs and replacements required to the satisfaction of the Owner's Representative and at no additional cost to the Owner's Representative.

1.07 EXISTING TREES

- A. The Contractor shall protect the tops, trunks and roots of all existing trees on/or near the project site that are designated to remain. Protect trees with a fence barrier as per local codes, and/or as indicated on the Contract Documents, prior to commencing work. Barriers shall be removed upon completion of the contract.
- B. Do not permit the parking of vehicles, or storage of materials or equipment under the dripline of existing trees.

1.08 QUALITY ASSURANCE

- A. Finish grades shall conform to contours, grades, lines and shapes, as indicated on Contract Documents, with uniform slopes between finish grades or between finish grades and existing grades.
- B. Establish finish landscape grades in a continuous, uniform line, resulting in a uniform surface with positive drainage and without ridges or water pockets.
- C. Finish landscape grade tolerance shall be .04 feet plus or minus of final grades indicated on Contract Documents.

1.09 SUBMITTALS

- A. If specified under this contract, provide one (1) cubic foot sample of topsoil material for the Owner's Representative and District approval prior to delivery to the site, but in any case, prior to placement.

PART 2 - PRODUCTS

2.01 ON-SITE SOIL

- A. Existing graded soil to within 1/10 foot (rough grade established by others) shall be free of rocks larger than one inch (1") in diameter, roots, grasses, weeds and other foreign matter.

2.02 IMPORTED TOPSOIL

- A. Contractor shall provide soil analysis of imported topsoil from source for approval. Topsoil shall be friable loam free from all noxious weeds and grasses, refuse, roots, heavy or stiff clay, brush or other deleterious materials and no rocks or clods greater than one half (1/2) inch in diameter. Acidity range (ph) of 6.5 to 7.5 with a minimum of 4% and a maximum of 25% organic matter.

PART 3 - EXECUTION

3.01 GENERAL

- A. Contractor to receive site as per the grades and spot elevations indicated on the Contract Documents.
- B. Rough grades shall be within plus or minus .10 foot of final finish grades as indicated on plans. If any discrepancies exist, notify the Owner's Representative and District immediately for direction.
- C. Contractor shall be responsible for bringing rough grades into conformity with finish grades as indicated on the plans. Comply with tolerances specified in this section and as specified in applicable sections of the specifications (i.e. concrete, asphalt, landscape installation, etc.).
- D. Conduct work in an orderly manner. Dirt shall not be permitted to accumulate on streets or sidewalks or washed into storm drains.
- E. Use all means required to prevent the erosion of freshly graded areas during construction and until such time as proposed hard surfaces and landscaping have been constructed.

3.02 LAYOUT

- A. Layout of all work under this Section shall be made by a licensed surveyor.
- B. Maintain all bench marks, control monuments and stakes. Protect from damage and dislocation.
- C. If any discrepancies are found by the surveyor between the Contract Documents and actual site conditions, the Owner's Representative and/or District reserves the right to make minor adjustment in Work Specified as necessary to accomplish the intent of the Contract Documents without increased cost to the District.

3.03 SUBGRADE PREPARATION

- A. Cut out areas, to subgrade elevation, which are to receive paving and sidewalks.
- B. Scarify subgrade to a depth of eight (8) inches and bring to a uniform moisture content.
- C. Bring subgrade to required levels, profiles and contours. Make changes in grade gradual. Blend slopes into level areas.
- D. Slope grade away from building minimum two-and-one-half (2-1/2) inches in ten (10) feet (2%) unless indicated otherwise on Contract Documents.
- E. Compact subgrade to the following:
 - 1. 90% relative compaction in accordance with ASTM D1557-78 for pavement areas.
 - 2. 85% relative compaction in accordance with ASTM D1557-78 for landscape areas.

3.04 FINISH LANDSCAPE GRADING

- A. Scarify or rototill to a 6" depth all planting areas prior to finish grade operations and work until uniform and free from large clods larger than one (1) inch in greatest dimension.
- B. The Contractor shall remove, to a depth of (6) six inches, all construction debris, clods, foreign matter and/or rocks larger than one and a half (1/2) inch diameter from finish graded topsoil utilizing mechanical methods/equipment specifically designed for debris removal purposes.
- C. Finish grade shall conform, after compaction, to shapes, spot elevations and contours as indicated on Contract Documents, with uniform levels or slopes between finish elevations or between finish elevations and existing elevations.
- D. Float off established finish grades, utilizing a mechanical method/equipment of sufficient size, weight and construction, to achieve a final finish grade that is smooth, loose and uniform with no ruts, humps, depressions, undulations or other irregularities not specifically called for or as shown on the plans.
- E. Soil amendment and preparation shall comply with SECTION 32 93 00 – LANDSCAPE INSTALLATION.
- F. Spread excess soil material excavated from plant pits to establish subgrades in surrounding planting areas.
- G. Compact soil in planting areas to 85% relative compaction in accordance with ASTM D1557-78.

- H. Fine grade all planting areas to a smooth, loose and uniform surface. Eliminate uneven areas, ridges and depressions.
- I. Turf areas shall be graded ½" below adjacent paved area, sidewalks, valve boxes, mow bands, drains, top of seat walls etc. in order to receive turf, establishing final grade flush with these surfaces.

3.05 OBSERVATION SCHEDULE

- A. Normal progress observations shall be requested by the Contractor from the District as per observations listed in SECTION 32 93 00 – LANDSCAPE INSTALLATION.

3.06 CLEAN UP

- A. After all grading operations have been completed, remove all trash, excess soil, or rubbish from the property. All scars, ruts or other marks in the ground caused by this work shall be repaired and the ground left in a neat and orderly condition throughout the site.
- B. The contractor shall pick up all trash resulting from work no less than once a week, and/or the last working day of each week.
- C. The Contractor shall leave the site area broom-clean and shall wash down all paved areas within the Contract area, leaving the premises in a clean condition acceptable to the District.

END OF SECTION

SECTION 32 05 23

CAST IN PLACE CONCRETE

PART 1 - GENERAL

1.01 CONDITIONS

- A. The general provisions of the Contract, including General and Supplementary Conditions and General Requirements apply to the work specified in this Section.

1.02 WORK INCLUDED

- A. Furnish all labor, materials and equipment required for the reinforcement, formwork and the construction of cast-in-place concrete structures including all other work required to produce a finished project in accordance with the Contract Documents and as specified herein.

- B. Related work specified in other sections:

- 1. SECTION 31 22 19 – FINISH GRADING

1.03 QUALITY ASSURANCE

- A. Comply with ASTM A-615 "Standard Specifications for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement," and "Manual of Standard Practice for Detailing Reinforced Concrete Structures," publication ACI 315-65 of the American Concrete Institute.
- B. Comply with all pertinent recommendations contained in American Concrete Institute (ACI), "Recommended Practice of Concrete Formwork, ACI-347."
- C. Construct forms to sizes, shapes, lines and dimensions indicated on Contract Documents, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finish. Solidly butt joints and provide back-up at joints to prevent leakage of cement paste.
- D. Provide complete forms of such strength and construction as to prevent any spread, shifting, or settling when concrete is deposited, and tight enough to avoid any leakage or washing out of cement mortar.
- E. Transitions of curves to other curves, and curves to straight line tangents, shall be smooth and continuous, and of the full radii shown on the drawings.
- F. Provide at least one person who shall be present at all times during execution of this portion of the Work and who shall be thoroughly trained and experienced in placing the types of concrete specified and who shall direct all Work performed under this Section. For finishing of exposed surfaces of the concrete, use only thoroughly trained and experienced journeymen concrete finishers.

- G. Conform to Section 90 of the "Standard Specifications of the State of California", Business and Transportation Agency, Department of Transportation (CSS), latest edition.

1.04 JOB CONDITIONS

- A. Temperature: All concrete design mixes and methods of protecting concrete shall be resubmitted to the Owner's Representative for review when the following temperatures are anticipated:
 - 1. The temperature is below 40° F, or when conditions indicate that the temperature will fall below 40° F within seventy-two (72) hours.
 - 2. The placing temperature of the concrete is, or anticipated to be, above 80° F.

1.05 COORDINATION

- A. Secure all pipe sleeves, anchors and bolts, including those for angle frames, inserts, ties and other materials in connection with concrete construction, in position before concrete is placed.
- B. Obtain information and instructions from other trades and suppliers in ample time to schedule and coordinate the installation of items furnished by them to be embedded in concrete so provisions for their work can be made without delaying the project.
- C. Make cutting and/or patching made necessary by failure or delay in complying with these requirements at no cost to the District.
- D. Sleeving shall be coordinated with concrete work. Refer to Contract Documents for sleeving locations.
- E. Electrical system work and conduit locations shall be coordinated with concrete work. Electrical conduit shall not be installed on surface of concrete work. Refer to Contract Documents for more information.

1.06 FORM CONSTRUCTION TOLERANCES

- A. Set form to required grades and lines, rigidly braced and secured. Install sufficient quantity of forms to allow continuous progress of work so that forms can remain in place at least twenty-four (24) hours after concrete placement.
- B. Check completed formwork for grade and alignment to following tolerances:
 - 1. Top of forms not more than one-eighth (1/8) inch in ten (10) feet vertical elevation.
 - 2. Vertical face on longitudinal axis not more than one-fourth (1/4) inch in ten (10) feet horizontal width.

PART 2 - PRODUCTS

2.01 CONCRETE REINFORCEMENT

- A. Reinforcing Bars: Deformed Billet Steel Bars, ASTM A-615, Grade 40 or Grade 60.
- B. Welded Wire Mesh: ASTM A-186 plain type and uncoated finish.
- C. Tie Wires: Black annealed, ASTM A-82, minimum 16 gauge.
- D. Chains, Bolsters, Bar supports, Spacers: Sized and shaped for strength and support of reinforcement during installation and placement of concrete.
- E. Stirrup Steel: ASTM A-82.
- F. Smooth dowel steel bars for construction joints: ASTM A-29, Grade 60.
 - 1. Where indicated, provide metal dowel sleeve at one end of dowel to permit longitudinal movement of dowel within concrete section.
 - 2. Provide for movement which equals joint width plus one-half (1/2) inch.

2.02 CONCRETE FORM MATERIALS

- A. Slabs and Walks: Steel, wood or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects.
 - 1. Use flexible spring steel forms or laminated boards to form radius bends as required.
 - 2. Coat forms with a non-staining form release agent that will not discolor or deface surface of concrete.
- B. Forms for Exposed Finish Concrete: Unless otherwise shown, construct formwork for exposed concrete surfaces with plywood, to provide continuous, straight, smooth, exposed surfaces. Provide plywood in largest practicable sizes to minimize number of joints. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection. Provide solid backing and form supports to insure stability of forms. On any length of wall the difference in form piece size shall not be greater than 25% plus or minus the dimension of the smallest piece and in no case smaller than two (2) inches in width.
 - 1. Use five (5) ply exterior plywood complying with U.S. Product Standard PS 1-66, "B-B (Concrete Form) Plywood," Class 1, Exterior Grade or better, with each piece bearing legible inspection trademark.
 - 2. Use form material in largest practicable sizes to minimize number of form joints. Arrange form joints orderly and symmetrically with minimum number of joints.

- C. Forms for Unexposed Finish Concrete: Form concrete surfaces which will be unexposed with plywood, lumber, metal or other acceptable material. Provide lumber dressed on at least two (2) edges and on one side for tight fit that is fir or pine, No. 2 common or better.
- D. Forms for Curved Exposed Surfaces: Forms shall be built up with hand sewn two (2) inch stringers, sized and carefully fitted to desired form, with segmental tacking. Exposed face surfaces shall be sheet metal, oil tempered hardboard, or one-quarter (1/4) inch waterproof plywood facing.
- E. Form Ties: Factory-fabricated, adjustable-length, removable or snap-off metal form ties (break back cone ties), designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal. All form ties to be used on unexposed concrete surfaces.

2.03 CONCRETE

A. Concrete Mix

1. Mix concrete in accordance with ASTM C-94 and with aggregates complying with ASTM C-33 and Portland Cement ASTM C-150, Type II.
2. All concrete mixes shall be designed by a testing laboratory approved by the Owner's Representative. All mixes shall conform to applicable building code requirements listed herein or on the Contract Documents. All mix designs shall be submitted to the Owner's Representative for approval before being used. Mix design shall show proportions of cement, fine and coarse aggregate, and water and gradation of combined aggregates. Calcium chloride shall not be added at any mix.
3. Concrete shall be as specified:

Item	Minimum Cement Content	28-Day Minimum Strength	Max. Slump	Aggregate Size	Gal/Bag Cement Ratio Max.
Slabs on Grade, Curbs, Walkways	505 lb/cu. yd	2,500 PSI	5 in.	¾ in	Five
Fence Post Footings	590 lb/cu yd.	3,000 PSI	5 in.	¾ in	Six

PART 3 - EXECUTION

3.01 CONCRETE REINFORCEMENT PLACEMENT

- A. Fabricate reinforcement in accordance with ACI-315, providing a minimum concrete cover of two (2) inches.

- B. Place all reinforcement in the exact position shown on the Contract Documents and secure in position during the placing and compacting of concrete. Wire bars together with No. 16 gauge wire with ties at all intersections except where spacing is less than twelve (12) inches in each direction, in which case tie alternate intersections.
- C. Overlap welded wire mesh one square plus six (6) inches to maintain a uniform strength, and securely fasten at the ends, edges and support to maintain clearances.
- D. Place all sleeves, inserts, anchors and embedded items required for adjoining work or for its support prior to concreting. Fill voids in embedded items temporarily with readily removable material to prevent entry of concrete.
- E. Give all contractors and subcontractors whose work is related to concrete or supported by it, ample notice and opportunity to introduce and/or furnish embedded items before concrete placement.

3.02 CONCRETE FORMWORK CONSTRUCTION

- A. Construct support, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by concrete.
- B. Contractor assumes full responsibility in the removal of forms. The length of time forms must remain in place depends on the rate of time required for concrete to obtain a proper strength. Remove forms after the concrete is sufficiently hard to prevent damage to concrete.
- C. Reuse of Forms:
 - 1. Do not reuse forms if there is any evidence of surface wear or defect which would impair quality of surface.
 - 2. Thoroughly clean and properly coat forms before re-use.
- D. Field Quality Control:
 - 1. Observe formwork continuously while concrete is being placed to see that there are no deviations from desired elevation, alignment, plumbness or camber.
 - 2. If during construction any weakness develops and falsework shows undue settlement or discoloration, stop work, remove affected construction if permanently damaged, and strengthen falsework.

3.03 CONCRETE PLACEMENT AND FINISHES

- A. Placing Concrete
 - 1. Place concrete in accordance with ACI-304 and Section 2605 of the Uniform Building Code. Immediately after depositing, compact concrete thoroughly by mechanical vibration. No vibrating of form is allowed. Mixing shall be continuous, with no interruptions from the time the truck is filled until the time it is emptied. Concrete shall be placed within one hour of the time water is first added.

2. Insure anchors, seats, plates, and other items to be cast into concrete are placed, held securely and will not cause hardship in placing concrete.
3. Insure reinforcement, inserts, embedded parts, etc. are not disturbed during concrete placement.
4. Pour concrete continuously between predetermined construction and control joints. Do not break or interrupt successive pours such that cold joints occur, unless otherwise indicated on the Contract Documents.
5. Lines and Grades: Elevations requiring accurate placement shall be set by a competent instrument man, using a professional type instrument.
6. For all concrete placed on soil, the subgrade shall be wet and compacted prior to placing.
7. Before placing concrete mixing, conveying and finishing equipment, forms and reinforcing shall be well cleaned. Wet form before placing concrete, unless oiled forms are used.

B. Concrete Finishing

1. Exterior Slabs and Sidewalks: After concrete has been placed, consolidate strikeoff and screed uniformly to the required grades. Float concrete to a uniform surface, then steel trowel lightly to compact surface. Finish exterior slabs and sidewalks as detailed on Contract Documents, or with a light broom finish if not otherwise noted. Exterior slabs and sidewalks shall be formed with slope as indicated, as directed or as necessary to insure proper drainage. Exterior slabs and sidewalks adjacent to buildings shall drain away from buildings.
2. Broom Finish:
 - a. Floating: Float surface once it has sufficiently stiffened. Check planeness of surface with a 10 ft. straightedge in all directions. Cut down high spots and fill lows. Immediately refloat to a uniform non-directional sandy texture.
 - b. Obtain texture and required slip-resistance by drawing a stiff bristled broom across a floated finish.
 - c. Direction of brooming to be perpendicular to direction of paving.
 - d. Finish shall be applied by the same workers, under the same conditions, throughout the project. Texture shall be uniform throughout, as solely determined by the Owner's Representative and/or District.
3. Protection and repair:
 - a. Protect adjacent materials and finished from dust, dirt, and other surface or physical damage during sand blast finishing operations. Provide protections as required and remove from site at completion of the work.
 - b. Repair or replace other work damaged by finishing operations.
4. Clean-Up: Maintain control of concrete chips, dust, and debris in each area of the work. Clean up and remove such materials at the completion of each day of

operation. Prevent migration of airborne materials by the use of tarpaulins, wind breaks, and similar containing devices.

C. Concrete Joints

a. Score and Sawcut Joints

- i. Score and sawcut joints shall be formed in the fresh concrete using a jointer to cut the groove so that a smooth uniform impression is obtained. All joints shall be struck before and after brooming.
- ii. Install joints as per the Standard Construction Specifications.
- iii. Install sawcut joints with a new diamond tip circular saw.
- iv. At curves or circles in slabs, joints shall be radial.
- v. All joints and other edges shall be formed in the fresh concrete using an edging tool to provide a smooth uniform impression.
- vi. Saw-cut joints shall be in a straight line with no over-cutting.

b. Expansion Joints

- i. Expansion joints shall be provided at the location and intervals as shown on the plans, and at all locations where concrete paving abuts buildings, curbs or other proposed vertical surfaces and structures. Install as per detail on Construction Documents.
- ii. At curves or circles in slab, joints shall be radial.
- iii. All joints and other edges shall be formed in the fresh concrete using an edging tool to provide a smooth uniform impression.
- iv. Backer rod and joint sealants shall be tinted to match or be in complementary color to adjacent paving.

D. Concrete Patching

- a. Patching of concrete to repair or disguise flaws, imperfections or other damage, shall commence only with the acceptance of the Owner's Representative and District. Patching color and finish shall conform to the original adjacent concrete color and finish, and the Owner's Representative and/or District shall be the sole judge in this respect. Any patching must occur prior to the final finishing.

E. Curing, Protection and Repair

1. Beginning immediately after placement, protect concrete from premature drying, from excessively hot or cold temperatures, and from mechanical injury. Maintain concrete with minimal moisture loss at relatively constant temperature for a period necessary for hydration of cement and hardening of concrete. Hairline fissures and cracks developed in first ninety (90) days shall result in replacement of concrete.

END OF SECTION