Stagg High School Pool
Replaster and Renovation
Stockton Unified School District

Technical Specifications
100% Re-Submittal

March 15, 2024

PREPARED BY:

VERDE DESIGN

Project No. 2313100
PTN #276

Stagg High School Pool Replaster and Renovation
SPECIFICATIONS SIGNATURE PAGE

Mark Baginski, Landscape Architect
Verde Design, Inc.

Greg S. Ferrell, Architect
Aquatic Design Group

DOCUMENT 00 01 10

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END OF DOCUMENT

SECTION 01 11 00

SUMMARY OF WORK

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. Work of this Contract consists of pool renovation including, but not necessarily limited to, the following:
   1. Pool facility renovation including mechanical and chemical equipment
   2. Tile and plaster resurfacing
   3. Pool deck
   4. Demolition of natural turf hillside seating
   5. Removal of irrigation valves
   6. Installation of synthetic turf seating.

B. The Work specifically includes all work as represented by the Drawings and Specifications issued for construction and subsequent approved revisions and addenda.

1.02 RELATED REQUIREMENTS

A. Section 01 42 00 - References.

1.03 PROJECT LOCATION

A. Stagg High School, 1621 Brookside Road, Stockton, CA 95207

B. The general nature and extent of the work and the appurtenant facilities are shown on the Drawings under the title: Pool Replaster and Renovation.

C. Perform work within the Limit of Work line indicated on the Drawings and per the discretion of the District.

1.04 SPECIFICATIONS AND DRAWINGS

A. The General Conditions, Supplementary Conditions, and Division 01 - General Requirements apply to the Work of all Sections.

B. Drawings, such as irrigation plans, utility plans, and other utility Drawings, are diagrammatic. Actual runs indicated on the Drawings shall be followed as closely as coordination with the work of other trades will permit. The exact routing of such improvements and locations of equipment shall be governed by site conditions, obstructions, and locations of other utilities as acceptable to the District.

C. In the event that discrepancies arise over dimensions, product references, omissions, or written statements, these conflicts shall be immediately brought to the District's attention by the Contractor. If available, this may be accomplished with the use of a "Request for Information" (RFI) form. While awaiting direction or clarification from the District, the Contractor shall re-direct work as necessary so as not to cause delay to the project.

D. If discrepancies arise between the Drawings and Specifications, the order of descending precedence shall be:
   1. Specifications.
   2. Details on the Drawings.
   3. Plans on the Drawings.

E. Products, materials, labor, etc., installed or performed without proper clarification, or prior to District acceptance shall be the Contractor's sole responsibility and shall be removed, repaired, replaced, and/or reinstalled per the District's direction at no additional cost to the District or its agents.

1.05 CONTRACTOR'S DUTIES

A. Provide and pay for:
   1. Labor, materials, equipment, tools, construction equipment machinery, and other facilities and services necessary for proper execution and completion of the Contract.
   2. Water and temporary utilities required for construction excluding any metering and connection fees or charges.
   3. Subject to the discretion of the Districts Representative as verified by the Contractor, utilities which are in place and/or are in use by the District at the site, excluding telephone, may be utilized by the Contractor, to the extent available, at no cost.
   4. Other facilities and services necessary for proper execution and completion of work to provide a facility capable of operation.
   5. Legally required sales, consumer, and use taxes.

B. Permits:
   1. The District shall obtain and pay for the building permits, utility cut-offs and hook-ups including, but not limited to: water, gas, and electrical meters, sanitary and storm sewer connection fees.
   2. The contractor shall obtain and pay for other permits required by District, County and other agencies, including but not limited to business licenses and hauling and dumping permits as applicable.
   3. Provisions of required permits and licenses, whether obtained by the District's Representative or the contractor, shall become a part of the Contract Documents and shall be adhered to by the contractor.

C. Comply with latest adopted edition of the governing building code and other codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of the work. Nothing in the Drawings or Specifications shall be construed to permit work not conforming to these applicable laws, ordinances, rules, and regulations. In case of conflicts between code requirements, the most restrictive shall apply; except that where the requirements of these Specifications exceed code requirements, the Specifications shall govern.

D. Attend pre-scheduled on-site job conference meetings and/or any special meetings as may be required by the District's Representative.

E. Promptly submit written notice to the District's Representative of any observed variance in Contract Documents from legal requirements. Appropriate modifications to Contract Documents will be performed by the District's Representative to incorporate such necessary modifications.
   1. Contractor shall assume responsibility for work performed and known to be contrary to such requirements.

F. Enforce strict discipline and good order among the contractor's or sub-contractor's employees per the discretion of the District's Representative.

G. The Contractor shall be held to have examined the site and to have compared it with the Drawings and Specifications, to have carefully examined all of the Contract Documents and to have satisfied itself as to the conditions under which the work is to be performed before entering in this Contract.
   1. No allowance shall subsequently be made on behalf of the Contractor on account of an error on its part or its negligence or failure to acquaint itself with the conditions of the site.

H. Examine site and verify that site conditions are acceptable to begin any work. Verify that work specified elsewhere has been completed to an appropriate stage to begin any applicable work. This includes, but is not limited to, lines, grades and surfaces prepared by others. Notify the District's

Representative in writing of any irregularities or unacceptable conditions. Start of work by Contractor shall indicate Contractor's acceptance of site conditions.

I. Throughout the job the Contractor shall be responsible for the general safety of the public and shall take appropriate means at no extra cost to District to provide a safe and secure job site to the satisfaction of the District's Representative.

J. Verify all measurements, materials and systems taken from the Drawings and Specifications. Contractor shall be responsible for all investigations, field measurements layouts, and coordination necessary to properly fit, install and complete the work required, including integration of new work into, and with existing.

K. Contractor shall deliver, receive, store, protect, install and apply materials in accordance with manufacturer's and/or industry specifications and instructions unless specifically modified and shown otherwise in the Contract Documents. Installations shall be tight, smooth, level, straight, true to line, and secure.

1.06 PROTECTION OF PROPERTY, MATERIALS AND WORK

A. Contractor shall be held responsible insofar as its operations are concerned for the care, protection, and preservation of the adjoining premises, buildings, trees, landscaping, utilities, walks, streets, and adjacent properties from damage resulting from or incidental to this Contract.

B. Protect existing structures, planted areas and improvements not designated for removal. Damage to existing structures including asphalt paving, utilities, and fixtures shall be replaced to an "as was" or better condition, at Contractor's expense, to the satisfaction of the District's Representative.

C. Materials and equipment, both before and after installation, shall be properly protected by the contractor from the weather and other hazards and kept in a clean and orderly manner.

D. Utility piping and conduit stub-outs, and parts or equipment left unconnected shall be capped, plugged, or otherwise properly protected by the contractor to prevent damage or the intrusion of dirt or other foreign matter.

E. Materials and equipment damaged or containing defects developed before acceptance of the work shall be replaced with new at the Contractor's expense.

1.07 WORK SEQUENCE AND SCHEDULE

A. The sequence and scheduling of the work to be performed by the Contractor shall be subject to review and acceptance by the District's Representative. The Contractor shall submit a Submittal Progress Log and Schedule in accordance with Section 01 33 00 - Submittal Procedures prior to starting work. Project schedules shall conform to Specification Section 01 33 00.

1.08 CONTRACTOR'S USE OF PREMISES

A. Confine operations to areas immediately within the proposed project sites.
   1. Develop and utilize construction access and haul routes as per the rules and regulations pertaining to the locale in which the work is to be performed and in accordance with the discretion of the District's Representative.
   2. Do not encumber site with materials or equipment.

B. Limit use of premises for work and construction operations to allow for work by other contractors.
   1. Conduct operations so as not to cause unnecessary delay or hindrance to other contractors.

2. Conduct, adjust, correct, and coordinate work with others to prevent project discrepancies and/or delays.

C. Assume full responsibility for protection and safekeeping of products stored on premises and work performed until Final Acceptance of the work.

D. Move stored products under Contractor's control which interfere with operations of the District.

E. Obtain and pay for use of additional storage or work areas needed for construction operations.

1.09 WORK HOURS AND WORK DURING ONGOING ACTIVITIES

A. Carry on the work as quietly as possible to prevent possible annoyance to adjacent properties. Avoid unnecessary noise at all times. Comply with local noise regulations or requirements. No work, delivery of equipment or materials shall take place between the hours of 5:00 PM and 8:00 AM, or during non-working hours and days without written authorization by the District's Representative.

B. When connecting new utilities to existing, and similar operations, the contractor shall time and coordinate with District's Representative, facility operators, and utility companies such operations to minimize interference with existing activities and operations.

1.10 MATERIALS

A. Unless otherwise noted or scheduled, materials and equipment specified and used in the work of this Contract shall be new, in first class condition, and suited to the intended use.

B. Materials shall be delivered to the site and stored in original containers sheltered from the elements, but readily accessible for inspection by the District's Representative until installed.

C. Materials of the same general type shall be of the same make and quality throughout the work to provide uniform appearance, operation, and maintenance ease.

D. Equipment specified by manufacturer's number shall include all controls and accessories listed in catalog as standard equipment. Furnish optional or additional accessories as specified.

E. Where no specified make of material or equipment is specified, any product by a reputable manufacturer which conforms to the requirements of the Contract Documents may be used with the District's Representative's acceptance.

F. Materials and equipment shall be current products by manufacturers regularly engaged in the production of such products.

G. Equipment items shall be supported by service organizations, which are reasonably convenient to the equipment installation in order to render satisfactory service to the equipment on a regular and emergency basis during the Specified Warranty Period.

1.11 NUISANCE WATER

A. The Contractor shall protect the work, at all times, from damage and shall take measures to prevent delays in the progress of the work caused by nuisance water, such as rainfall, irrigation water and groundwater.

B. The Contractor shall dispose of nuisance water using appropriate mechanical means at their sole expense and without adverse effects upon the District's, or any other property.

C. The Contractor shall comply with all applicable non-point source pollution regulations required by the District.

1.12 REFERENCE POINTS

A. The Contractor shall leave existing stakes and reference points in their existing locations unless directed or authorized otherwise by the District's Representative. The Contractor shall set additional stakes and reference points as necessary to properly establish horizontal and vertical controls required for the work.

1.13 COORDINATION

A. The Contractor shall coordinate all items of its work to assure efficient and orderly sequence of installation of construction elements.
   1. The Contractor shall make provisions for accommodating items installed by the District or under separate contracts.
   2. The Contractor shall coordinate and cooperate fully with all other agencies, sub-contractors, or utility company personnel furnishing labor, materials, or services, so that the work, as a whole, shall be executed in the most efficient manner and without conflict or delay.

B. The Contractor shall verify that characteristics of interrelated operating equipment are compatible and coordinate work having interdependent responsibilities for installing of mechanical, irrigation, or electrical work, which may be indicated diagrammatically on Drawings.

C. The Contractor shall coordinate space requirements and installation of work, which is indicated diagrammatically on Drawings.
   1. Follow routing shown for pipes and conduits as closely as possible, run lines parallel with lines of construction edges whenever possible.
   2. Utilize spaces efficiently for other installations, for maintenance, and for repairs.
   3. Work out all conditions involving work of all trades in advance of installation. If necessary, and before work proceeds in areas with constricted clearances, prepare supplementary drawings for District's Representative review, showing all work in "tight" areas. Provide supplementary drawings and additional work necessary to overcome spatially constricted conditions.

D. Differences or disputes concerning coordination, interference or extent of work between divisions shall be decided by the District's Representative.

E. Access Doors and Panels: Coordinate access door and panel requirements with each trade installing work to which access must be available to the District's Representative from time to time.

1.14 CUTTING AND PATCHING

A. Contractor shall be responsible for all cutting, fitting, or patching of work which may be required to make its several parts come together properly and fix it to receive or be received by work of other trades.

B. Costs incurred by defective or poorly timed work shall be borne by the responsible party, as determined by the District's Representative. Contractor shall not endanger any work, persons or construction by cutting, digging, or otherwise, and shall not alter the work of any other contractor except as acceptable to the District's Representative.

C. Patching of openings for new installations and openings resulting from the removal or relocation of an installation shall be done with material of the same type adjoining openings and as acceptable to the District's Representative.

1.15 CLEANING DURING CONSTRUCTION

A. Execute weekly cleaning operations to keep the work, site, streets, and adjacent properties free from accumulations of waste materials, rubbish, and windblown debris resulting from construction operations.

B. Provide on-site containers for the collection of waste materials, debris and rubbish.

C. Remove hazardous waste materials, debris, and rubbish from the site periodically and properly dispose of such materials at legal disposal areas.
   1. Location of legal disposal sites and all costs incurred from waste disposal and transportation shall be the responsibility of the contractor.
   2. Waste material or debris shall not be buried or burned on the site.

D. The District's Representative may, at any time during construction, order general clean-up of the site at no additional cost to the District.

1.16 PROJECT COMPLETION

A. Conform to Section 01 77 00 - Contract Closeout.

B. The Contractor shall, at completion of the project, leave the installed work properly operating and in a thoroughly clean condition.

C. Thoroughly instruct the District's Representative and any applicable operation and maintenance personnel in the contents of the "operations and maintenance manual." Refer to Section 01 33 00 – Submittal Procedures.

END OF SECTION

SECTION 01 25 00

SUBSTITUTION PROCEDURES

1.01 SUMMARY

A. Section Includes: Specific requirements for submission and approval of products other than those specified or noted on the Drawings.

B. Related Requirements:
   1. Section 01 33 00 – Submittal Procedures
   2. Other applicable Sections of the Specifications

1.02 DEFINITIONS

A. Substitutions - General: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

B. Substitutions for Cause: Changes proposed by Contractor that are required due to changed project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.

C. Substitutions for Convenience: Changes proposed by Contractor or District that are not required in order to meet other Project requirements but may offer advantage to Contractor or District.

1.03 INTENT OF SPECIFICATIONS – PRODUCT SELECTION

A. When a material, article, or process is indicated or specified by trade, patent, proprietary name, or name of manufacturer, the Specification shall be deemed to be followed by the words "or equal, as accepted in writing by the District's Representative" and a request for substitution shall be submitted as specified in this Section. Provide only the named product or products where products are specified followed by the words "no substitution." Substitutions are not allowed.

B. The naming of more than one manufacturer in a Section does not imply that all products produced by the listed manufacturers are acceptable for use on the project. Where more than one proprietary name, process, and product is specified, the Contractor may provide materials or equipment of any one of the manufacturers specified if it is in full compliance with the Contract Documents and is acceptable to the District's Representative.

C. Costs incurred due to requests, changes or revisions resulting from substitutions requiring Drawings or services of the District's Representative or Project Consultants to facilitate purchase, installation or erection of any portion of the work shall be borne by the Contractor. A flat hourly rate, as agreed upon, shall be paid by the Contractor whether the change is accepted or not. This fee shall be deducted, and paid, from Contract moneys due to the Contractor as determined by the District's Representative.

1.04 ACTION SUBMITTALS

A. Procedures: In accordance with Section 01 33 00 – Submittal Procedures.

B. Substitution Requests:
   1. Include sufficient data, drawings, samples, literature, and other detailed information which demonstrates to the District's Representative that the proposed substitute is equal in quality, operating efficiency, and durability of the material specified.

2. Substitution Request Form: As mutually agreed upon by Architect and Contractor.
3. Documentation:
    a. Submit a detailed side-by-side comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
    b. Sufficient data, drawings, samples, literature, and other detailed information which demonstrates to the District's Representative that the proposed substitute is equal in quality, operating efficiency, and durability of the material specified.
    c. Statement indicating why specified product, fabrication, or installation cannot be provided, if applicable or requested.
    d. Samples for review, if applicable.
    e. Certificates and qualification data.
    f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and Districts.
    g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
    h. Research reports evidencing compliance with building code in effect for Project.
    i. Cost information, including a proposal of change, if any, in the Contract Sum.
    j. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
    k. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

C. Submittal Timing:

1. Prior to Bidding:
    a. A request for substitutions will be considered if received within 10 calendar days from the bid opening date.
    b. Approval of substitutions shall be accepted or denied by the City at least 3 calendar days before bid opening.
    c. If a decision on use of a substitute cannot be made within these time limits, the product specified shall be used.
2. Following Award of Contract:
    a. Substitutions for Cause: Submit requests immediately on discovery of need for change, but not later than 15 working days prior to time required for preparation and review of related submittals.
    b. Substitutions for Convenience: Submit within 20 days after commencement of the Work. Requests received after that time may be considered or rejected at discretion of Architect.

1.05 CONSIDERATION OF SUBSTITUTIONS

A. General:
1. Materials and equipment for the work shall be the standard product of a manufacturer regularly engaged in the production of such materials and equipment. Product options or substitutions shall not be the basis for any price increase above the original Contract Sum.
2. Substitutions which are equal in quality, efficiency, durability and utility to those specified will be permitted, subject to the following conditions.
3. The District's representative shall review such proposed substitutions and determine if a substitution is acceptable. If the following conditions are not satisfied, District's Representative will return requests without action, except to record noncompliance with these requirements.
4. Failure of the Contractor to submit proposed substitutions for review in the manner specified shall be sufficient cause for rejection by the District's Representative of any substitutions otherwise proposed.

5. Failure to place orders for specified equipment or material sufficiently in advance of the scheduled date of installation shall not be considered a valid reason upon which the Contractor may base a request for any substitutions or for any deviations from the Contract Documents.

B. Substitutions for Cause: District's Representative will consider Contractor's request for substitution for cause when the following conditions are satisfied. If the following conditions are not satisfied, District's Representative will return requests without action, except to record noncompliance with these requirements:
   1. Substitution request is fully documented and properly submitted.
   2. Requested substitution will not adversely affect the Project Construction Schedule.
   3. Requested substitution has received necessary approvals of authorities having jurisdiction, if applicable.
   4. Requested substitution provides specified warranty.
   5. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

C. Substitutions for Convenience: District's Representative will consider Contractor's request for substitution for convenience when, in addition to the conditions specified for a substitution for cause, under the following conditions.
   1. Requested substitution offers District a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities District must assume. District's additional responsibilities may include compensation for redesign and evaluation services, increased cost of other construction by District, and similar considerations.
   2. Requested substitution does not require extensive revisions to the Contract Documents.
   3. Requested substitution is consistent with the Contract Documents and will produce indicated results.

D. Action by District's Representative:
   1. Substitutions shall be favorably reviewed and accepted by the District's representative in writing prior to implementation. Favorable review shall not relieve the Contractor from complying with the requirements of the Contract Documents, and the Contractor shall be responsible for all expenses for any changes resulting from acceptable substitutions which affect other parts of the work.
   2. If necessary, District's Representative will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution.
   3. District's Representative will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
   4. Forms of Acceptance: Change Order, Construction Change Directive, or Supplemental Instructions for minor changes in the Work.

E. The first or only named manufacturer is the basis for the project design and the use of alternative-names, second-names, or unnamed manufacturer's products may require modifications in the project design and construction.
   1. Costs incurred due to requests, changes or revisions resulting from substitutions requiring drawings or services of the District's representative or project consultants to facilitate purchase, installation or erection of any portion of the work, shall be borne by the contractor. A flat hourly rate, as agreed upon, shall be paid by the contractor whether the change is accepted or not. This fee shall be deducted, and paid, from Contract moneys due to the contractor as determined by the District's representative.

F. Contractor shall furnish full information concerning the material or articles being proposed for substitution.
   1. Testing of a proposed substitute material to assure compliance with the Specifications may be required by the District's representative at the contractor's expense.
   2. Samples shall be submitted for review as specified in Section 01 33 00 – Submittal Procedures.

3. Equipment, material, and articles installed or used by the contractor without required review, shall be at the contractor's risk.

G. Substitutions shall comply with or exceed all requirements of size, function, structure, durability, and appearance without exception.
   1. Use of accepted substitutions shall in no way relieve the contractor from responsibility for compliance with the Contract Documents after installation.
   2. The contractor shall assume all extra costs caused using such substitutions where they affect other work or trades.

1.06 SUBSTITUTION REQUEST FORM

A. For proposed substitutions, the Contractor shall complete the following Substitution Request Form, attach substantiating back-up literature, and submit to the District's representative within time limit specified.

(Remainder of this Page is Blank)

SUBSTITUTION REQUEST FORM

DATE: _____

TO: DISTRICT'S REPRESENTATIVE

PROJECT NAME: _____

_____

_____

SPECIFIED ITEM: Section _____ Page _____ Item Number_____ Paragraph _____

DESCRIPTION:

_____

_____

_____

_____

S A M P L E

_____

_____

_____

The undersigned requests consideration of the following:

PROPOSED SUBSTITUTION: (put N/A where not appropriate)

Manufacturer: _____ Color:_____

Model Number: _____ Material: _____

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of the requests; applicable portions of the data are clearly identified.

Attached data also includes description of changes to Contract Documents which the proposed substitution requires for proper installation.

The undersigned states that the following paragraphs, unless modified on attachments, are correct:

1. The proposed substitution does not affect dimensions shown on Drawings. If, in fact, it does affect dimensions, the contractor shall provide shop drawings, accurately showing changes to documents.
2. The undersigned shall pay for changes to the design, including engineering design, detailing, and

construction costs caused by the requested substitution.

3. The proposed substitution shall not adversely affect other trades, the construction schedule, or specified warranty requirements.
4. Maintenance and service parts are locally available for the proposed substitution.

The undersigned further states that the function, appearance, and quality of the proposed substitution are equivalent or superior to the specified item.

Submitted by:

Signature: _____ Title: _____

License Category: _____ License Number: _____

Firm: _____ Phone No.: _____

Address: _____ Fax No.:_____

Telephone: _____

DISTRICT'S REPRESENTATIVES REVIEW:

☐ NO EXCEPTIONS TAKEN ☐ EXCEPTIONS TAKEN (SEE ATTACHED COMMENTS)

☐ FURNISH AS CORRECTED ☐ REVISE AND RESUBMIT

By: _____ S A M P L E

Date: _____

Comments:

_____

_____

_____

_____

Attachments:

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Procedures to be followed in preparing and submitting the following supplementing and superseding those included in the General Conditions.
      a. Photographic documentation.
      b. Construction Schedule.
      c. Submittal Schedule.
      d. Project directory.
      e. Product list.
      f. Shop drawings.
      g. Design-build engineering design and drawings.
      h. Product data.
      i. Samples.
      j. Procedures for:
         1) Action Submittals.
         2) Informational submittals.
         3) Deferred submittals.
         4) Delegated design services.
      k. Colors and patterns submittals.
      l. Operating and maintenance manuals.
      m. Field samples and mockups, including on-site review of materials, colors, and textures.
      n. Requests for Information (RFI's).
   2. Final distribution of submittals.

B. Related Requirements:
   1. Section 01 25 00 - Substitution Procedures.

1.02 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require District's Representative's responsive action. Action submittals are those submittals indicated in individual Specification Sections as action submittals.

B. Informational Submittals: Written and graphic information and physical samples indicated in individual Specification Sections as informational submittals that do not require District's Representative's responsive action.

C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.03 GENERAL

A. Comply with the requirements specified in addition to submittal review procedures and requirements of the General Conditions.

B. Do not commence any portion of the Work requiring submission of a shop drawing, product datum, or sample until the submittal has been reviewed by District's Representative and appropriate consultant. Such portions of the Work shall be in accordance with reviewed submittals.

C. Shop drawings, product data, and samples are in no case to be considered Contract Documents but are to be treated only as instruments of convenience and facility to further the progress of the Work.

D. Shop drawings, product data, samples and supporting data shall be prepared by Contractor or its suppliers but shall be submitted to District's Representative by Contractor as the instruments of the Contractor.
   1. Contractor shall check the drawings of its suppliers as well as its own drawings before submitting them to District's Representative.
   2. Contractor shall ascertain that shop drawings, product data, and samples meet all requirements of the Contract Documents and also conform to the structural and space conditions. If shop drawings, product data, and samples show variations from Contract Documents, whether because of standard shop practice or other reasons, Contractor shall make special mention thereof in its letter of transmittal and describe the reasons why there are variations.
   3. Contractor shall be fully responsible for observing the need for and making changes in arrangement and manner of installation of piping, connections, wiring, and similar items that may be required by equipment it proposes to supply, both as pertains to its own work and work affected under other parts, headings, or Divisions of the Contract Documents.
   4. Prior to submittal to District's Representative, each shop drawing, product datum, and sample submitted for review shall be stamped, dated, and signed by Contractor, verifying that it has been checked by Contractor to be in accordance with the Contract Documents. Submittals not signed by Contractor will be returned without review by the District's Representative.

E. Miscellaneous systems not specifically specified but installed to meet code requirements or for other reasons are subject to District's Representative's review prior to installation.

1.04 COORDINATION OF SUBMITTALS

A. Prior to submittal, use all means necessary to fully coordinate all material, including, but not necessarily limited to:
   1. Determine and verify all interface conditions, catalog numbers and other data.
   2. Coordinate with other trades as required.
   3. Clearly indicate all deviations from requirements of the Contract Documents.
   4. Verify that each item and the submittal conform in all respects with the requirements of the Contract Documents.

B. The following products do not require further review except for interface within the Work, unless indicated otherwise:
   1. Products specified by reference to standard specifications such as ASTM and similar standards.
   2. Products specified by manufacturer's name and catalog model number.

C. By affixing the Contractor's signature to each submittal, the Contractor certifies that this coordination has been performed.

1.05 GROUPING OF SUBMITTALS

A. Unless otherwise specified, make submittals in groups containing all associated items to assure that information is available for checking each item when it is received.
   1. Partial submittals may be rejected as not complying with the provisions of the Contract.
   2. The Contractor may be held liable for delays so occasioned.

1.06 IDENTIFICATION OF SUBMITTALS

A. Consecutively number all submittals.
   1. When material is resubmitted for any reason, transmit under a new letter of transmittal and with a new transmittal number.
   2. On resubmittals, reference the original submittal number.

B. Accompany each submittal with a letter of transmittal showing all information required for identification and checking.

C. On at least the first page of each copy of each submittal, and elsewhere as required for positive identification, clearly show the submittal number in which the item was included.

D. Maintain an accurate submittal log for the duration of the Work, showing current status of all submittals at all times. Make the submittal log available to the District's Representative for review.

E. Quality Control Set: Maintain returned final set of submittals at project site, in suitable condition and available for quality control comparisons by District's Representative.

1.07 TIMING OF SUBMITTALS

A. Make submittals far enough in advance of scheduled dates for installation to provide all time required for reviews, necessary approvals, possible revisions, resubmittals, and for placing orders and securing delivery.

B. In scheduling, allow for review by the District's Representative in a timely manner following receipt of the submittal by the District's Representative.

C. Delays caused by tardiness in receipt of submittals will not be an acceptable basis for extension of the Contract completion date.

1.08 SUBSTITUTIONS

A. Substitution requests shall be written, timely and submitted in accordance with the procedures specified in Section 01 25 00 - Substitution Procedures.

PART 2 - SUBMITTALS

2.01 PROJECT DIRECTORY

A. After execution of the Contract but prior to commencement of Work, Contractor shall submit to District's Representative a Project Directory listing subcontractors and vendors on the Project and giving a brief description of their scope of work, firm name, contact person, address, phone number, and fax number.

2.02 SUBMITTAL SCHEDULE

A. Contractor shall prepare and submit to District's Representative a "Submittal Schedule" when required by the General Conditions showing scheduled dates of submittals and date required for return of submittals to Contractor.

B. Contractor shall provide in schedule a minimum of 10 working days for District's Representative to review and check submittals as may be necessary provided it is not a deferred approval item. Based on the number and complexity of submittals at any one time, District's Representative's review period may be longer than 10 days.

C. Dates on "Submittal Schedule" shall be agreed upon by both District's Representative and Contractor.

2.03 PRECONSTRUCTION PHOTOGRAPHS

A. Before commencement of work on the site, take digital photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by the District's Representative.

B. Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as cracking or other damage caused by demolition, site preparation, and building construction operations.

C. Submit digital file as specified for Construction Photographs.

D. Submit before Work begins.

2.04 CONSTRUCTION PHOTOGRAPHS

A. Provide digital photographs taken weekly of site and construction from beginning of demolition to completion of exterior work. Photographs shall be produced by the contractor in a manner deemed acceptable to District's Representative.

B. Photographs shall:
1. Provide factual presentation.
2. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.

C. Views:
1. Provide non-aerial photographs from four cardinal views at each specified time until date of Substantial Completion.
2. Consult with District's Representative for instructions on views required.
3. View and location for each orientation shall be maintained throughout Project.

D. Digital File:
1. File Format: Joint Photographic Experts Group (JPEG), unless otherwise directed by District's Representative.
2. Minimum Resolution: 2400 x 3000 pixels.
3. Provide digital date/time information in each image file (EXIF metadata).
4. Digital images shall be exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

E. Submit digital file of photographs on USB flash drive or cloud storage folder with each Application for Payment to District with Project Record Documents.
1. Deliver USB flash drive with Project Record Documents. The USB flash drive shall contain digital files of the Project photographs.
2. Provide digital files with dated folders and appropriate descriptions.
3. Prints are not required.

2.05 CONSTRUCTION SCHEDULE

A. In accordance with the General Conditions, prepare a comprehensive schedule of basic operations of the entire Project in the form of a Critical Path (CPM) network or other appropriate method acceptable to District's Representative.
1. Indicate critical dates for submission of specified shop drawings, product data, samples, and certificates. Provide in Schedule a minimum of 10 working days for District's Representative to

review and check submittals as may be necessary. No extension of time will be granted because of Contractor's failure to make submittals to allow for review and processing by District's Representative in accordance with the accepted milestones. Specific submittals considered by the Contractor to be on the "critical path" shall be indicated on the Schedule.

2. Include decision dates for products specified by allowance and for selection of colors/finishes.

B. The schedule shall be the basis for establishing starting and completing dates of Work for the Project.

C. Conform to accepted schedule, and arrange work in such a manner that it will be installed in accordance with the schedule.

D. Establish a program to reevaluate and update the schedule periodically in accordance with requirements of the Project. Submit first schedule 2 weeks after Notice to Proceed.

E. Coordinate letting of subcontracts, material purchases, delivery of materials, sequence of operations, and similar activities to conform to accepted schedule, and furnish proof of conformance as may be required by District.

F. In case District determines, after consultation with District's Representative, that Contractor fails or refuses to take appropriate and necessary measures to complete the Work in accordance with the accepted schedule or within time to which such completion may be extended, the Contract, or any part thereof, may be terminated under the provisions of the General Conditions.

G. Submit to the District's Representative for review, within 45 calendar days after date of the Contract or as allowed by the Schedule, all submittals for equipment, fabrications, and specialty items as listed in each Section of the Specifications.

2.06 SHOP DRAWINGS

A. Shop drawings shall be drawn to a scale, be completely dimensioned, and be sufficiently large to show all pertinent aspects of the item and its method of connection to the Work, or as specifically indicated elsewhere in other Sections of these Specifications.

B. Entitle shop drawings with name of the Project and list applicable divisions, sections, article, or reference on each sheet.

C. Submit separate items on separate sheets.

D. The reproduction of any Contract Documents for use in a shop drawing submittal is not permitted.

1. If the Contractor requires, it may request drawings/backgrounds from the District's Representative to use in its preparation of shop drawings. The District's Representative will send drawings, via e-mail, only after the following is completed:
   a. Contractor to complete a "CAD Release & Indemnity Agreement," or similarly named document, to be provided by District's Representative. Sign and return to the District's Representative.
   b. Requests for drawings prepared by consultant of District's Representative shall be directed to the office of the respective consultant and are subject to each consultant's firm policies.
2. Review comments of the District's Representative or it's consultants will be shown on the copy returned to the Contractor. The Contractor shall make and distribute additional copies as are required for its purposes.
3. The District shall be provided with a copy of shop drawing transmittals only if requested.

2.07 PRODUCT DATA

A. Manufacturer's standard drawings shall be modified to delete information which is not applicable and shall be supplemented to provide additional information where so required.

B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data shall:
   1. Have each copy clearly marked to identify pertinent materials, products, models, finishes, etc.
   2. Show clearly standard options included.
   3. Show dimensions and clearances required.
   4. Show performance characteristics and capacities.
   5. Show wiring diagrams and controls, and show necessary rough-in requirements for utility services and connections, where applicable.
   6. Include manufacturer's installation instructions on 8.5-inch by 11-inch format.

C. Identify each item of product data by reference to sheet and detail numbers of Contract Drawings and/or specific reference to Articles or paragraphs of a Specification Section.

D. Where product data, as submitted, contains extraneous information, unmarked options, or is incomplete, it will be returned to Contractor without review.

2.08 SAMPLES

A. Contractor shall forward to District's Representative, at its own expense, samples designated for use on the Project. Include material, equipment, textures, colors, and fabrics in sizes and quantities as required by the Drawings and Specifications or as requested by District's Representative. Where there is an expected range of color or texture variations for the specified item, submit sufficient number of samples to illustrate range.

B. Submit and resubmit samples until accepted by District's Representative.

C. No review of a sample shall be taken in itself to change or modify the Contract requirement.

D. Finishes, materials, and workmanship in the completed Project shall match accepted samples.

E. Samples of value will be returned to Contractor, when requested in writing at time of submittal, for its use in the Project after review, analysis, comparison, or testing as may be required by District's Representative.

F. No samples shall be incorporated into the Work, unless otherwise specified or specific approval is given by District's Representative.

2.09 COLORS

A. Unless the color and pattern are shown or specified, whenever a choice of color or pattern is available in a specified product, submit accurate color charts and pattern charts to District's Representative for review and selection.

B. Completely describe the relative costs and capabilities of each color and pattern, unless available colors and patterns have identical costs and wearing capabilities.

2.10 FIELD SAMPLES AND MOCKUPS

A. Comply with requirements specified in respective Specification Section.

2.11 REQUESTS FOR INFORMATION (RFI'S)

A. RFIs shall be submitted by the Contractor or by subcontractors to the Contractor who shall then assign the request an RFI number and forward the request on to the District's Representative. RFIs from contractors under separate contract with District, and performing work concurrently with work under this Contract, shall submit RFIs through the Contractor for coordination.

B. Subcontractors shall not submit RFIs directly to the District's Representative.

C. Each RFI shall be given a discrete, consecutive number such as "001," "002," "003," etc. Revisions or resubmittal of the same RFI shall maintain the original RFI number but be otherwise identified with a suffix such as "001A" for first revisions, "001B" for second revision, etc.

D. Contractor shall identify in the RFI the specific issue that the Contractor is requesting information on, where the issue is referred to in the Contract Documents, and what is the Contractor's proposed solution to the apparent conflict. RFIs not addressing these three issues will be rejected.

E. The District's Representative's response to RFIs will confirm a stated interpretation or otherwise interpret the design intent and may include furnishing an alternative conflict resolution.

F. The District's Representative will review and process RFIs in an average of 10 working days. It is acknowledged and understood that some RFIs will take longer to answer than others.

G. RFI Log: Contractor shall prepare and maintain a log of RFIs, and at any time requested by the District's Representative, the Contractor shall furnish copies of the log showing all outstanding RFIs.

PART 3 - EXECUTION

3.01 PROCEDURES FOR ACTION SUBMITTALS

A. General: Submit as specified in the General Conditions and Specification Sections.
   1. Submittals shall be made to District's Representative. Submittal of shop drawings via e-mail attachment will be generally accepted, though when requested by District's Representative, Contractor shall provide full size and half size shop drawings.
   2. Subcontractors shall make submittals to Contractor.
   3. Submittals shall not be made directly to the District, unless specifically requested, or consultants of the District's Representative. Even if a submittal is reviewed and returned by a consultant of the District's Representative, such submittal shall be considered as not reviewed if not submitted through the District's Representative.
   4. If more than one resubmittal of the same item or its component is required, the Contractor will be billed for additional review time and materials at current billing rates of the District's Representative.

B. Unless otherwise agreed or requested, District shall be provided with a copy of transmittals only.

C. Copies required in each Action Submittal shall be as follows unless otherwise mutually agreed or specified in a respective Specification Section:
   1. Shop Drawings and Product Data: Digital PDF (Portable Document Format) files via email, ftp site, or other secure file transfer protocol.
      a. Digital submittals shall be fully compatible with Adobe Acrobat Reader.
      b. All parties shall view and print with Adobe Acrobat (fully up-to-date) to ensure compatibility, unless agreed upon otherwise.
      c. District's Representative reserves the right to request hard copies of submittals as follows:
         1) Shop Drawings: Three sets of bond prints.

2) Product Data: Three sets.

2. Samples:
   a. Unless otherwise specified, submit samples in the quantity which is required to be returned, plus 2 which will be retained by the District's Representative.
   b. By prearrangement in specific cases, a single sample may be submitted for review and, when reviewed, be installed in the Work at a location agreed upon by the District's Representative.

D. Identification:
   1. Properly identify each submittal with name of Project, Contractor, subcontractor, and date.
   2. Accompany each submittal by an acceptable transmittal form referring to Project name and Specifications Section number, and paragraph number, when applicable, for identification of each item.
   3. Consecutively number shop drawings for each Section of work; retain numbering system throughout all revisions.
   4. Allow clear space on each drawing, product datum, and sample for stamp of Contractor and District's Representative. Where clear space is not available on samples, submit with tags or stickers attached.

E. Stamp each shop drawing, product datum, and sample to certify that it has been coordinated and checked for completeness and compliance with requirements of the Work, Project, and Contract Documents.

F. Review by District's Representative:
   1. General:
      a. Except for finish, color, and other aesthetic matters left to District's Representative's decision by Contract Documents, District's Representative's review of shop drawings, product data, and samples is only for Contractor's convenience in following work and does not relieve Contractor from responsibility for deviations from requirements of Contract Documents.
      b. Do not construe review by District's Representative as a complete check or relief from responsibility for errors or omissions of any sort in shop drawings or schedules or from necessity of furnishing work required by Contract Documents that may not have been shown on shop drawings.
      c. Review of a separate item by District's Representative does not indicate review of complete assembly in which it functions.
      d. Review comments of the District's Representative (or its consultants) will be shown when it is returned to the Contractor. The Contractor shall make and distribute such copies as are required for its purposes.
   2. Submittals not stamped by Contractor and submittals which, in opinion of the District's Representative, are incomplete, contain numerous errors, or have not been checked or have only been checked superficially will be returned to Contractor for resubmittal.
   3. Processing:
      a. District's Representative will review shop drawings, product data, and samples in accordance with agreed upon "Submittal Schedule" and will return them to Contractor imprinted with stamp of the District's Representative.
      b. Notations by District's Representative which increase Contract cost or time of completion shall be brought to attention of the District's Representative before proceeding with work. Failure to do so will result in the increased costs being borne by the Contractor.
      c. Each submittal will be stamped indicating appropriate action required of the Contractor.
      d. If for any reason the Contractor cannot comply with the notations, Contractor shall re-submit submittal. In the transmittal letter accompanying the re-submittal, clearly describe the reason(s) for not being able to comply with the notations.

G. Consultants' Review:
   1. Submittals requiring review by District's Representative or its consultants shall be sent to the District's Representative. District's Representative will forward submittal to applicable consultant for their review.

2. Processing shall be in accordance with consultants stamp.
3. If action required by consultants stamp is not clear, Contractor shall immediately notify the District's Representative for a clarification.
4. If returned submittal also includes stamp by the District's Representative, processing shall be in accordance with the District's Representative's stamp.

H. Revisions:
1. Make revisions pertinent to by comments noted on the submittal.
2. If the Contractor considers any required revision to be a change, they shall so notify the District's Representative as provided for in the General Conditions.
3. Show each revision by number, date, and subject in a revision block on the submittal.
4. If for any reason Contractor cannot comply with the notations, Contractor shall resubmit submittal.

I. Revisions after Review: When a submittal has been reviewed by the District's Representative, resubmittal for substitution of materials or equipment will not be considered unless accompanied by an acceptable explanation as to why the substitution is necessary, or unless directed by the District.

3.02 PROCEDURES FOR INFORMATIONAL SUBMITTALS

A. General:
1. Prepare and submit "Informational Submittals" where required by the Specifications.
2. Number of Copies: Submit PDF as specified for Action Submittals unless otherwise indicated. District's Representative will not return copies.
3. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
4. Test and Inspection Reports: Comply with requirements specified in Section 01 45 00 – Quality Control.

B. The following items shall be considered "Informational Submittals" whether or not identified as such in the respective Specification Sections.
1. Qualification Data.
2. Certificates for or from the following:
a. Installers.
b. Manufacturers.
c. Products and materials.
3. The following Reports:
a. Material and Product Test Reports.
b. ICC-ES Reports:
c. Preconstruction Test Reports.
d. Compatibility Test Reports.
e. Field Test Reports.
4. Maintenance Data.
5. Design Data.
6. Manufacturer's Instructions.
7. Manufacturer's Field Reports.
8. Insurance Certificates and Bond.
9. Construction photographs as specified .
10. Material Safety Data Sheets (MSDSs).

3.03 PROCEDURES FOR DEFERRED SUBMITTALS

A. Deferred Approval submittals shall first be submitted to the District's Representative. If the District's Representative reviews the submittal with corrections noted, those corrections must be addressed and the submittal returned to the District's Representative. Once the District's Representative has no comments on

a submittal, it will be returned and shall be resubmitted with approval by all government agencies having jurisdiction."

B. The Contractor shall then submit to these agencies and make revisions required by these agencies until approval by all government agencies having jurisdiction is obtained. See Section 01 11 00 - Summary of Work for further requirements.

C. When approval has been obtained by all governing agencies having jurisdiction, the approved submittal shall be resubmitted to the District's Representative for final approval. It is the responsibility of the Contractor to verify acceptability of government agency required revisions with the District's Representative. If the resubmittal to the District's Representative includes revisions that had not been previously approved by the District's Representative in writing, the District's Representative has the right to reject these revisions. It is then the Contractor's responsibility to resubmit to government agencies having jurisdiction to obtain approval of the District's Representative's noted corrections.

3.04 PROCEDURES FOR CLOSEOUT AND MAINTENANCE MATERIAL SUBMITTALS

A. Number of Copies: Two, unless otherwise directed by District's Representative.

B. Comply with additional Closeout Procedures specified for the Project.

3.05 FINAL DISTRIBUTION AFTER REVIEW

A. In addition to copies of submittals required by Contractor, subcontractors, suppliers, and fabricators, Contractor shall make distribution to:
   1. Contractor's jobsite file.
   2. Project Record Documents file; see additional requirements specified in Section 01 78 39 - Project Record Documents.

END OF SECTION

SECTION 01 41 00

REGULATORY REQUIREMENTS

1.01 SUMMARY

A. Section Includes:
   1. The codes and regulations applicable to the Work.
   2. Code and regulatory abbreviations used in the Specifications.

B. Related Requirements:
   1. Section 01 42 00 - References, Abbreviations, and Definitions; requirements relating to industry standard references used in the Specification Sections.

1.02 APPLICABLE CODES AND REGULATIONS

A. Codes which apply to this Project include, but are not limited to, the following including additions, changes, and interpretations adopted by the enforcing agency in effect as of the date of these Contract Documents
   1. City and County:
      a. Municipal Codes established by the Building Inspection Commission (BIC) including the Building Code (SFBC), Mechanical Code, Plumbing Code, and Electrical Code.
      b. Noise Ordinance.
      c. Construction debris and waste management regulations.
      d. Green Building Standards of SFBC Chapter 13C.
   2. State of California Code of Regulations (CCR):
      a. Title 8, Industrial Relations.
      b. Title 19, Public Safety.
      c. Title 24, Building Standards Code.
         1) Part 2, California Building Code.
         2) Part 3, California Electric Code.
         3) Part 4, California Mechanical Code.
         4) Part 5, California Plumbing Code.
         5) Part 6, California Energy Code.
         6) Part 9, California Fire Code.
   3. State of California, Business and Transportation Agency, Department of Transportation (Caltrans) "Standard Specifications."
      a. Control of Work: Conform to Section 5.
      b. Control of Materials: Conform to Section 6.
   4. The following additional Codes and Standards:
      a. California Occupational Safety and Health Act Standards (Cal-OSHA).
      b. Occupational Safety and Health Act (OSHA).
      c. Air Quality Standards of the Bay Area Air Quality Management District of the California Air Resources Board including emissions and dust during construction.
      d. Americans with Disabilities Act (ADA) Standards.
      e. Environmental Regulations including:
         1) 22 CCR, Section 66260 et seq.; California Hazardous Waste Management Regulations.
         2) 40 CFR, Part 260 et seq.; Hazardous Waste Management System.
         3) 42 USC, Section 6901 et seq.; Resource Conservation and Restoration Act (RCRA).
         4) National Pollutant Discharge Elimination System (NDPES).
      f. National Fire Protection Association (NFPA): Standards 13, 24, 72, and 80.
      g. National Electrical Code (NEC).

B. All work shall meet or exceed the requirements of the above codes.

C. References in the Specifications to "code" or to "building code," not otherwise identified, shall mean the foregoing specified codes, together with the additions, changes, amendments, and interpretations adopted by the enforcing agency and in effect on the date of these Contract Documents. Nothing on the Drawings or in the Specifications shall be interpreted as requiring or permitting work that is contrary to these rules, regulations, and codes.

D. Where other regulatory requirements are referenced in these Specifications, the affected work shall meet or exceed the applicable requirements of such references.

E. Regulatory requirements referred to shall have full force and effect as though printed in these Specifications.

F. Where the Drawings or Specifications call for or describe materials, workmanship, or construction of a better quality, higher standard, or larger size than is required by said laws, codes, rules, and regulations, the provisions of the Drawings and Specifications shall take precedence over said laws, codes, rules, and regulations.

1.03 OTHER APPLICABLE LAWS AND REGULATIONS

A. All applicable federal, state, and local laws, regulations of governing utility districts, regulations of the state fire marshal, federal, state and local environmental regulations, and the various other authorities having jurisdiction over the construction of the Project shall apply to the Contract throughout and they shall be deemed to be included in the Contract the same as though printed in these Specifications.

B. Discrepancies between these codes, rules, and regulations and the Contract Documents shall be brought to the attention of the District's Representative for resolution.

END OF SECTION

SECTION 01 42 00

REFERENCES, ABBREVIATIONS, AND DEFINITIONS

1.01 SUMMARY

A. Section Includes:
   1. Requirements for standard references used in the various Specification Sections.
   2. Standard reference abbreviations used in the Project Manual.
   3. Definitions of terms used in the Project Manual.

B. Related Requirements:
   1. Section 01 41 00 - Regulatory Requirements

1.02 STANDARD SPECIFICATIONS

A. The Contract Documents contain references to various standard specifications, codes, practices, and requirements for materials, work quality, installation, inspections, and tests published and issued by the organizations, societies, and associations. Such references are hereby made part of the Contract Documents to the extent required.

B. When standard specifications are included by abbreviation and number only, it is assumed that the Contractor is familiar with and has ready access to the specified standards.

C. When the effective date of a reference standard is not given, it shall be understood that the current edition or latest revision thereof and any amendments or supplements thereto in effect on the date of original issue of these Contract Documents, as indicated on the cover, shall govern the Work.

D. Reference standards are not furnished with the Contract Documents, because the Contractor, subcontractors, manufacturers, suppliers, and the trades involved are assumed to be familiar with their requirements.

E. Contractor shall obtain its own copies of required specified referenced publications.

F. The specification or standard referred to shall have full force and effect as though printed in these Specifications.

G. In addition to those standards specifically referenced in the Specifications, comply with the accepted industry standards and trade association recommendations for the respective portions of Work.

H. In the case of difference between referenced standards and the Contract Documents, the most stringent requirements prevail.

1.03 STANDARD SPECIFICATION ABBREVIATIONS

A. In addition to abbreviations indicated on the Drawings, references in the Project Manual to trade associations, technical societies, recognized authorities, and other institutions may include the following organizations, which are sometimes referred to by only the corresponding abbreviations. Not all abbreviations are listed, and not all listed abbreviations are used.

B. Abbreviations:

1.	AA	Aluminum Association
2.	AAADM	American Association of Automatic Door Manufacturers
3.	AAMA	American Architectural Manufacturer's Association.
4.	AASHTO	American Association of State Highway and Transportation Officials

5. ACI American Concrete Institute
6. AEIC Association of Edison Illuminating Companies
7. AIA American Institute of Architects
8. AIEEE American Institute of Electrical and Electronic Engineers
9. AISC American Institute of Steel Construction, Inc.
10. AFI Air Filter Institute
11. AJCHN American Joint Committee on Horticultural Nomenclature
12. AMCA Air Moving and Conditioning Association
13. ANSI American National Standards Institute
14. APA APA - The Engineered Wood Association
15. ARI American Refrigeration Institute
16. ASHRAE American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc.
17. ASLA American Society of Landscape Architects
18. ASME American Society of Mechanical Engineers
19. ASSE American Society of Sanitary Engineering
20. ASTM American Society for Testing and Materials
21. AWMAC Architectural Woodwork Manufacturers Association of Canada
22. AWPA American Wood Protection Association
23. AWI Architectural Woodwork Institute
24. AWS American Welding Society, Inc.
25. AWWA American Water Works Association
26. BHMA Builder's Hardware Manufacturers Association
27. CBC California Building Code
28. CRA California Redwood Association
29. CSI Construction Specifications Institute
30. CLFMI Chain Link Fence Manufacturers Institute
31. CRSI Concrete Reinforcing Steel Institute
32. CS Commercial Standard of National Bureau of Standards, U.S. Department of Commerce
33. DHI Door and Hardware Institute
34. FGMA Flat Glass Marketing Association
35. FM Factory Mutual
36. FS Federal Specification of General Services Administration
37. GA Gypsum Association
38. ICC-ES International Code Council Evaluation Service, Inc.
39. MIL Military Specification of U.S. Department of Defense
40. NAAMM National Association of Architectural Metal Manufacturers
41. NAAWS North American Architectural Woodwork Standards
42. NAFM National Association of Fan Manufacturers
43. NBS National Bureau of Standards
44. NEC National Electric Code
45. NEMA National Electrical Manufacturers' Association
46. NFC National Fire Code
47. NFPA National Fire Protection Association
48. NIST National Institute of Standards and Technology
49. NLMA National Lumber Manufacturers Association
50. NSF National Sanitation Foundations
51. PCI Precast Concrete Institute
52. PDI Plumbing and Drainage Institute
53. RIS Redwood Inspection Service [Grading Rules]
54. SDI Steel Deck Institute
55. SDI Steel Door Institute
56. SFPA Southern Forest Products Association
57. SMACNA Sheet Metal and Air Conditioning Contractors' National Association, Inc.
58. State of California:
    a. Caltrans Business and Transportation Agency, Department of Transportation
    b. SFM Office of State Fire Marshal

c.	DSA	Division of State Architect.
59.	SSPC	SSPC: The Society for Protective Coatings
60.	TCNA	Tile Council of North America
61.	UL	Underwriters' Laboratories, Inc.
62.	WCLIB	West Coast Lumber Inspection Bureau
63.	WDMA	Window and Door Manufacturers Association
64.	WI	Woodwork Institute
65.	WMMP	Wood Moulding & Millwork Producers Association
66.	WRCLA	Western Red Cedar Lumber Association
67.	WWPA	Western Wood Products Association.

1.04 DEFINITIONS

A. Reference to Drawings: Where the words "shown", "indicated", "detailed", "noted", "scheduled". or words of similar import are used, it shall be understood that reference is made to the Drawings accompanying these Specifications, unless otherwise noted.

B. Addendum: The word "Addendum" shall mean written and/or graphic modifications to the Contract documents provided to holders of the Contract Documents prior to the opening of bids. Addenda shall be issued by the Districts Representative.

C. Alternates: The word "Alternates" shall be understood to mean alternate products, materials, equipment, systems, methods, units of work or elements of the construction, which may, at the Districts option and under the terms established by the Contract Documents, be added to, or deleted from the work.

D. Approvals: The words "approved", "approval", "acceptable", "acceptance", shall mean acceptance by the Districts Representative is required.

E. Contract Change Order: The words "Contract Change Order" shall mean a change order authorization to the Contractor, covering changes to the Contract found by the District Representative to be necessary for the proper completion or construction for the whole work required by the Contract, and establishing the basis of payment and/or time adjustments for the work affected by the changes, also sometimes referred to as a "Change Order."

F. Contract Documents: The words "Contract Documents" shall mean the documents contained within the General Conditions, Special Provisions of the Contract, the Drawings, the Specifications, Change Orders, and other modifications issued by the Districts Representative prior to and after execution of the Contract and identified as a Contract Document. The words "Contract Documents" shall mean those documents as defined in the General Conditions.

G. Directions: The words "directed," "designated," and "selected" shall mean the directions, designations, selection, of the Districts Representative, unless otherwise noted.

H. Drawings: The word "Drawings" shall mean the official Project bid or construction plans, plan details, profiles, typical cross sections, working drawings, shop drawings, supplemental drawings, and/or reproductions thereof, accepted or issued by the Districts Representative, which show the locations, character, dimensions, and details of work to be performed. All such documents are to be considered as a part of the Drawings.

I. Equals: The words "or equal," "equal to," "approved equal," "or approved equal," “accepted equal,” and "equivalent," shall mean "equal to or acceptable in the opinion of the Districts Representative," unless stated otherwise.

J. Language: Words and phrases requiring an action or performance, such as "perform," "provide," "install," "furnish," "connect," "test," "coordinate," and words and phrases of similar import, shall be understood to be preceded by the phrase "The Contractor shall" unless otherwise stated.

K. Modifications: The word "modifications" shall mean a written amendment to the Contract signed by both parties to the Construction Contract, a Change Order, a written interpretation issued by the Districts Representative or a written order for a minor change in the work issued by the Districts Representative.

L. Notice To Proceed: The words "Notice to Proceed" shall mean the written notice issued by the Districts Representative to the contractor fixing the date on which or within which dates the contractor shall start to perform the contractor's obligations under the Contract Documents.

M. Perform: The word "perform" shall mean that the contractor, at their expense, shall perform all operations including necessary labor, tools, and equipment and further including the furnishing and installation of materials that are indicated, specified, and required to complete such the conditions of the Contract and Contract Documents.

N. Project: The word "project" shall mean the total construction of the work performed under the Contract Documents.

O. Provide: The word "provide" shall mean that the Contractor, at its expense, shall furnish and install the work, complete in place and ready for use, including furnishing of necessary labor, materials, tools, equipment and transportation.

P. Required: The word "required" shall mean "as required to properly complete the work and as required and acceptable to the District's Representative" unless otherwise noted.

Q. Shop Drawings: The words "shop drawings" shall mean drawings, diagrams, schedules, and other data specifically prepared for the work by the contractor or their sub-contractor, manufacturer, supplier, or distributor to illustrate some portion of the work.

R. Site: The words "Site" or "Sites" shall be understood to mean the property or properties described within the Contract Documents and indicated on the Drawings where the work shall commence.

S. Substantial Completion: The words "substantial completion" shall mean the time and date when the work, or designated portion thereof, is sufficiently complete in accordance with the Contract Documents so that the District can occupy or utilize the work, or designated portion thereof, for the use for which it was intended, as evidenced by the District's Certificate of Substantial Completion. The Certificate of Substantial Completion shall set forth the date on which Substantial Completion is deemed by the Districts Representative in its sole discretion to have occurred. This shall occur only when the site improvements are 100 percent complete and shall exclude correction of final punch list items(s) and the execution of the Landscape Maintenance Period. The issuance of a Certificate of Substantial Completion shall signify the date on which the accounting of Contract "Working Days" or "Calendar Days" is terminated insofar as they may relate to Liquidated Damages.

T. Work: The word "work" whether capitalized or in lower case, shall be understood to mean labor, materials, or both, and the entire construction encompassed by the Contract Documents.

END OF SECTION

SECTION 01 45 00

QUALITY CONTROL

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Testing and inspection requirements.
   2. Testing Agency qualifications.
   3. Manufacturer's field services.

B. Related Requirements:
   1. Inspections and Testing Required by Laws, Ordinances, Rules, Regulations, Orders, or Approvals of Public Authorities: Conditions of the Contract.
   2. Additional requirements for inspections and testing are included in the General Conditions.

1.02 TESTING LABORATORY SERVICES

A. General:
   1. Requirements for testing are included in governing codes and described in various Sections of the Specifications.
   2. The District will employ and pay for the services of an Independent Testing Agency to perform testing and inspection requirements required by code and other tests and inspections when specified to be performed and paid for by the District. Employment by the District of the Testing Agency shall in no way relieve Contractor's obligations to perform the Work of the Contract.
   3. Tests required by the Specifications and not specified or required by Code to be performed and paid for by the District shall be performed by a testing laboratory employed and paid for by the Contractor and meeting the qualification requirements specified in this Section.
   4. Where no testing requirements are described, but the District decides that testing is required, the District may require such testing be performed under current pertinent standards for testing. Payment for such testing will be by the District.
   5. Inspections, tests, and related actions specified are not intended to limit the Contractor's quality control procedures that facilitate compliance with the Contract Documents.

B. Qualification of Testing Agency:
   1. Meet "Recommended Requirements for Independent Laboratory Qualification," published by American Council of Independent Laboratories.
   2. Meet basic requirements of ASTM E329, "Use in the Evaluation of Testing and Inspection Agencies as Used in Construction."
   3. Authorized to operate in the State of California.

C. Limitations of Authority of Testing Agency: Testing Agencies are not authorized to:
   1. Release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Approve or accept any portion of the Work.
   3. Perform any duties of the Contractor.

D. Testing Agency Duties:
   1. Cooperate, together with Contractor, in notifications, information, scheduling, storage, and access as necessary to meet requirements for service without causing delays on Project.
   2. Perform specified inspections, sampling, and testing of materials and methods of construction.
   3. Comply with specified standards.
   4. Ascertain compliance of materials with requirements of Contract Documents.

5. Notify District's Representative and Contractor when test or inspection reveals undesirable conditions, nonconformance, or failure to meet requirements.
6. Promptly submit written report of each test and inspection, with copies to District's Representative, Contractor, and governing agencies as required.
    a. Include all samples taken and tests made, regardless of results.
    b. Include reports to show specified requirements, and state whether or not test results comply with requirements.
7. Perform additional tests as required by the District's Representative.

1.03 CONTRACTOR'S RESPONSIBILITIES

A. It is the Contractor's responsibility to coordinate the services of all testing and inspection required by the separate Specification Sections whether or not to be performed by the District's or Contractor's Testing Agency.

B. Contractor shall furnish promptly, without additional charge, all reasonable facilities; labor and materials necessary for safe, thorough, and convenient inspection; and tests that may be required by the Contract Documents.

C. Prepare and submit to District's Representative a schedule of tests required of the Testing Agencies at least 15 working days in advance of first test. In addition, Contractor shall give minimum 48 hours' notice to the Testing Agency prior to required tests and inspections.

D. Furnish, prepare, and deliver test samples and specimens as required by the Testing Agency except where such preparation and handling are to be performed by Testing Agency. Contractor shall be solely responsible for delays due to such samples' not being submitted and resubmitted, if necessary, in the time required for tests or inspections before material is incorporated into the Work.

E. Cooperate with Testing Agency personnel in providing access to materials being tested or inspected.

F. Make necessary repairs to in-place work caused by removal of required test samples.

G. Materials furnished and installed on the Project shall be equal to approved test samples in every respect.

H. Samples which are of value after testing will remain the property of the Contractor, but no such samples shall be incorporated in the Work without written approval of the District's Representative.

I. Costs associated with testing, inspections, and observations due to the following shall be the responsibility of the Contractor:
    1. Re-testing due to failure of initial samples.
    2. Unacceptable changes in sources, lots, or suppliers of materials after original testing established compliance.
    3. Changes in methods or materials of construction by contractor that require testing, inspection, or other related services in excess of those required by original design.
    4. Failure to properly notify the District's Representative at critical stages of construction.
    5. Requesting testing, inspection, and/or observation of work not ready.

1.04 QUALITY ASSURANCE

A. Materials furnished and work performed under the Contract shall be subject to review by the District's Representative. The Contractor shall be held strictly to the requirements of the Contract Documents regarding quality of materials, workmanship, and diligent execution of the Contract. Review by the District's Representative may include mill, plant, shop, or field review as deemed necessary.

B. Work performed in the absence of any prescribed inspection or observation may be subject to removal and replacement. In such a case, the entire cost of removal and replacement shall be borne by the Contractor, regardless of whether the work removed is found to be defective or not.

1.05 CONFLICTING REQUIREMENTS

A. If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to District's Representative for a decision before proceeding.

B. The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to District's Representative for a decision before proceeding.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 EXAMINATION OF CONDITIONS

A. Prior to installing any portion of the work, the Contractor shall examine the site and verify that site conditions are acceptable to begin work of each section.

B. Verify that work specified elsewhere has been completed to an appropriate stage to begin work of each section.

C. Materials or products requiring installation under the supervision or inspection of a specific materials manufacturer or manufacturer's representative shall be examined and/or tested, and accepted in writing, by such representative(s) prior to installation of work.

D. Notify the District's Representative immediately in writing of any irregularities or unacceptable conditions and re-direct work to avoid delay.

E. Start of work by Contractor shall indicate Contractor's acceptance of site conditions.

3.02 TOLERANCES

A. Tolerances not specifically identified shall meet the written standards and/or recognized commercial tolerances established for the specific materials or product. Refer to Section 01 42 00 - References.

3.03 REQUIRED TESTS AND INSPECTIONS

A. "Special Inspections" as required by the CBC or as applicable.

B. Additional Tests and Inspections: See the various technical Sections of the Specifications.

3.04 FAILURE TO PASS TESTS

A. Failure of any material or article to pass specified tests will be sufficient cause for refusal to consider any further samples of the same brand or make of that material or article.

B. Where an individual material is to be part of an assembly with other materials for incorporation in the Work, failure of the material to pass specified tests or to conform to indicated standards will be sufficient cause for its rejection and removal and replacement, regardless of whether tests or inspections have been made or not in an assembled or in an unassembled condition.

C. When tests indicate non-compliance, the Contractor shall pay all direct and indirect costs of subsequent re-testing until compliance is established.

3.05 MANUFACTURER'S FIELD SERVICES

A. When specified in respective Specification Sections, Contractor shall require supplier or manufacturer to provide qualified personnel to observe field conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, testing, adjusting and balancing of equipment as applicable, and to make appropriate recommendations. Contractor is responsible for proper notification of manufacturer's representative before installation of applicable work and for obtaining necessary inspection certificate stating that installation was observed and approved.

B. Product Performance Verification: The supplier of products specified based on performance criteria shall, at the request of the Agency, inspect the installed product and certify conformance of the product to specified criteria under the installed conditions.

C. Manufacturer's representative shall submit written report to the District's Representative listing observations and recommendations.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Temporary facilities and controls needed for the Work during construction including, but not necessarily limited to:
   1. Temporary utilities.
   2. Sanitary facilities.
   3. Enclosures such as coverings, barricades, and fences.
   4. Site security.

B. Related Requirements:
   1. Equipment normally furnished by individual trades in execution of their portions of the Work shall comply with requirements of pertinent safety regulations.
   2. Permanent installation and hookup of utility lines are included under other Sections.

1.02 SELECTED REFERENCE AND REGULATORY REQUIREMENTS

A. National Fire Protection Association (NFPA):
   1. 10 - Portable Fire Extinguishers.
   2. 241 - Safeguarding Building Construction and Demolition Operations.

B. State of California, Business and Transportation Agency, Department of Transportation (Caltrans) "Standard Specifications."

1.03 GENERAL

A. Furnish, install, and pay for meters, equipment, wiring, and piping necessary to provide such utilities.

B. Additional requirements for construction facilities and temporary controls are included in the General Conditions.

C. Provide written notification to the District to request use of new building equipment for temporary facilities. New building equipment shall not be used for temporary facilities without prior written approval from District.

1.04 REQUIREMENTS FOR REGULATORY AGENCIES

A. Comply with applicable standards referenced in Section 01 42 00 - References, Abbreviations, and Definitions.

B. All facilities shall be provided and maintained by the contractor in accordance with Cal-OSHA and applicable laws and ordinances.

C. Contractor shall:
   1. Take suitable steps to ensure that public utilities encountered in connection with the Work will not be damaged.
   2. Send notices, make necessary arrangements, and provide services required for the care of gas mains, water pipes, sewer pipes, conduits, cables, and other equipment or property.

3. Arrange with utility companies for fees required to move or remove their meters, poles, cables, guy wires, or equipment in or set under the property which will interfere with the construction work or which will not be required in the new construction.

PART 2 - TEMPORARY FACILITIES AND CONTROLS

2.01 MATERIALS

A. General: Materials may be new or used but shall be adequate in capacity for the required usage, shall not create unsafe conditions, and shall not violate requirements of applicable codes and standards.

B. Tools, extension cords, and electrical equipment shall conform to Underwriters' Laboratory standards and OSHA requirements and shall be in proper working order to preclude hazard to occupants and premises.

2.02 UTILITY SERVICES

A. Power and Lighting: Furnish, install, and maintain temporary wiring, poles, meter board, service entrance switch, lamps, and equipment as necessary to provide temporary lighting and power for the construction site.
   1. Pay all costs for temporary electrical systems required for construction.
   2. Source of power shall be at location on site acceptable to the District's representative. Required temporary transmission lines shall be arranged by contractor in conjunction with the appropriate utility company.

B. Water:
   1. Install temporary piping and valves downstream from permanent (new) meter locations as acceptable to the District's representative. No temporary water services shall be installed prior to meter installation without prior District review and acceptance.
   2. Temporary water facilities shall be installed with an acceptable reduced pressure backflow prevention unit furnished and installed by the contractor.
   3. Locate temporary sources of water route, and construct pipelines so that they do not create a hazard or interfere with public access, traffic, or construction operations.
   4. Design and construct such pipelines.

C. Utility Costs for Contractors: Distribution of temporary utility services to sub-contractors shall be Contractor's responsibility and cost.

2.03 CONTRACTOR'S FIELD OFFICE

A. The Contractor shall provide and maintain the following minimum facilities and equipment in the field office:
   1. Door top type jobsite desk or equivalent horizontal desk surface for drawings.
   2. Adequate storage facilities.
   3. A laptop or other portable device for internet access and to transmit and receive information to and from the Architect.
   4. Digital camera, with downloading interface, for purposes of communicating field conditions.
   5. Additional facilities and equipment as required by the Architect.

2.04 TEMPORARY TELEPHONE AND INTERNET SERVICE

A. Contractor shall arrange, provide, and pay for the following temporary service at the site.
   1. A cell phone line and phone for the Contractor's Superintendent.
   2. Internet access for laptop or another acceptable internet access device.

2.05 TEMPORARY SANITARY FACILITIES

A. Provide, pay for, install, and maintain, for duration of the Work, necessary enclosed toilet and sanitary facilities for construction personnel.
   1. Sanitary facilities shall be provided, maintained with supplies as required for the number of construction personnel in compliance to local regulations.
   2. Locate such facilities a reasonable distance from all working areas.

B. New or existing restroom facilities, if available, shall not be used by construction personnel except with written permission from the District.

2.06 FIRST AID

A. Provide and maintain first aid supplies as required Cal-OSHA and applicable local ordinances.

B. Make arrangements with local emergency center and nearest hospital to receive personnel requiring medical attention, including emergencies. Information for emergency center shall be conspicuously displayed at the construction office when an office is required on the Project.

2.07 STORAGE ENCLOSURES

A. Provide sheds and enclosures necessary for storing applicable materials and equipment.

B. Enclosures shall be conveniently located, substantially and neatly constructed, and weather tight.

C. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible.

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

E. Provide off-site storage and protection when site does not permit on-site storage or protection.

F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation or potential degradation of product.

G. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent contamination by foreign matter.

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

I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

J. Hazardous or Flammable Materials:
   1. Use and store hazardous or flammable chemicals, liquids, or gases brought into the Project site in approved containers, conforming to local, state, and national fire codes.
   2. Use hazardous materials in a manner that will prevent their accidental release into other areas.
   3. Do not discard hazardous materials into the jobsite waste-disposal facilities.
   4. Remove empty containers from the premises immediately and disposed of in a legal manner.

2.08 STAGING AND HOISTS

A. Furnish and maintain hoists, staging, rigging, and runways required in the execution of the Work.

B. Erect, equip, and maintain temporary work in accordance with the statutes, laws, ordinances, rules, or regulations of the state or other authorities and state-approved insurance companies having jurisdiction.

2.09 SAFETY AND PROTECTION

A. General:
1. Follow construction procedures necessary to provide a safe working condition through all phases of the Project. Procedures shall conform to the Safety Orders, Division of Industrial Safety, Title 8, California Code of Regulations.
2. Conform to applicable requirements of the State Occupational Safety and Health Administration.
3. The District, District's Representative, and field inspectors are not hired to review or approve safety procedures followed by the Contractor.

B. Contractor is solely responsible for outlining safety procedures to be followed by its workers, subcontractors, and related trades working on its Project. Provide for safety of the public both day and night where they are exposed to construction operations.

C. Contractor shall also take whatever care is necessary to avoid damage to existing facilities or utilities to remain, whether on the Project or adjacent to it, and shall be liable for any damage thereto or interruption of service as a result of its operations.

D. Provide fences, barricades, railings, warning lights, lights and other protection required by law, Contract Documents, and common sense to ensure public safety.

E. Give adequate warning to the public at all times whenever a dangerous condition exists as the result of construction work. Furnish District's Representative with name, address, pager number and local telephone number of the superintendent responsible and at least one other person for the maintenance of barriers, signs, lights, and other accident prevention devices for evenings and weekends.

F. Protection of Work and Facilities:
1. Protect adjacent property, roads, streets, curbs, planting areas, erosion control materials and other improvements during construction operations. All damaged materials shall be replaced and/or repaired at the expense of the contractor and to the satisfaction of the District's Representative.
2. Protect installed work and provide special protection where applicable.
3. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
4. Contractor shall install temporary construction fencing per contract documents and place signage on the fence stating, "Construction Area – Keep Out" and "No Trespassing". Signs shall be located along fence every 75 feet.

G. Vehicular Safety: Motorized and/or self-propelled construction equipment shall be equipped with a hub-cap type reverse signal alarm.

2.10 WATER CONTROL

A. Furnish and maintain pumps or other devices that may be required by Contractor's work under this Contract.

B. The Work shall be kept free of standing water during construction.

2.11 MAINTENANCE OF TRAFFIC, ACCESS, AND PARKING

A. Throughout progress of work, do not interfere with use of or access to adjacent buildings or property.

B. Construct, designate and maintain specific vehicular access as required for the orderly progress of the work.
   1. Engineer construction access roads and parking areas as necessary to provide suitable support during all weather conditions for anticipated loads, including municipal fire apparatus.
   2. Provide adequate surface drainage without interrupting natural flow of existing drainage.

C. Parking:
   1. Provide temporary on-site parking to accommodate construction personnel and District's Representative to the greatest extent possible. Coordinate location with the District's Construction Coordinator.
   2. Contractor shall make arrangements for offsite parking, if required, with adjacent public parking facilities to accommodate vehicles of construction personnel. Cost of parking is the responsibility of the Contactor and/or its subcontractor.

D. Restore temporary vehicular access and parking areas to original or specified conditions prior to Project Final Acceptance.

E. Move and relocate traffic signs and signals, controls, power and light poles, and similar utility and public service items obstructed by Project barricades and operations.

F. Maintain accessibility from street at all times to fire hydrants within construction area.

G. Construction traffic shall be routed, whenever possible, to avoid noise impacts on the surrounding neighborhood.

H. Construction period for trucks hauling fill and piling materials shall be restricted to nonpeak hours to minimize impact to rush hour traffic and to avoid noise impacts on the surrounding existing residential areas.

I. Vehicles (wheels in particular) shall be cleaned before leaving site so as to minimize impact on City streets.

J. Clean and sweep all streets muddied or littered from construction activity to the satisfaction of the City.

2.12 HAUL ROUTES

A. Comply with any and all local governing ordinances and guidelines.

2.13 FIRE PROTECTION

A. Take precautions to prevent and eliminate fire hazards. The Contractor shall be responsible for providing, maintaining, and enforcing any necessary or required fire prevention safeguards until project final acceptance.

B. Provide fire extinguishers on the premises during the course of construction of the type and sizes recommended by the NFPA 10 and NFPA 241 to control fires resulting from the particular work being performed. Instruct employees in their use. Place extinguishers in the immediate vicinity of the work being performed, ready for use.

C. Fire Inspection: The Contractor's Superintendent shall inspect the entire project as necessary to make certain the required precautions are being maintained.

D. Combustible and/or flammable Building Materials: Only an appropriate working supply of flammable fuel or building materials shall be located inside storage facilities.

E. During the use of hazardous equipment, such as acetylene torches, welding equipment, bitumen kettles, and similar devices, no work shall start or equipment used unless fire extinguishers of specified type and capacity are placed in the working area and available for use by workmen using such hazardous equipment. Extinguishers shall meet standards established by Underwriter's Laboratory and shall be inspected at regular intervals and recharged by the contractor, as necessary.

F. Combustible and/or flammable Waste Materials. Oil-soaked rags, papers, and other highly combustible materials must be stored in closed metal containers with tightly-hinged lids at all times, and shall be removed from the site at the close of each day's work and more often when necessary.

2.14 TOOL AND ELECTRICAL EQUIPMENT

A. Tools, extension cords, and electrical equipment shall conform to Underwriters' Laboratory standards and OSHA requirements and shall be in proper working order.

2.15 TEMPORARY SIGNS AND NOTICES

A. Contractor shall post and maintain all signs and notices required by law or ordinance. No advertisements will be permitted on the premises without approval of the District.

B. Project Sign:
1. Contractor shall provide a project sign as directed by the District.
2. Sign graphics shall include, as a minimum, the following:
    a. Project name.
    b. District's name.
    c. Landscape Architect's name and address.
    d. Contractor's name and address.
3. Full-scale artwork for logos, if required, will be provided.
4. Location of sign shall be as directed by the District.

2.16 TRASH REMOVAL

A. Store trash or rubbish resulting from construction within the Contract work area.

B. Provide the necessary on-site containers for the collection of recycling materials, waste materials, and debris.

C. Remove waste materials and debris from the site periodically and dispose of at recycling centers or legal disposal sites in accordance with governing construction and demolition debris regulations.

D. Keep the work area clean at all times. Increase frequency of trash removal, when requested by the District, to conform to this requirement.

E. Waste material and debris shall not be buried at the site.

F. Burning of trash and debris on the site will not be permitted.

2.17 SECURITY

A. All site security shall be the responsibility of the Contractor at its expense and no additional cost to District.

B. Employment of security personnel for non-construction hours shall be left to the discretion of the Contractor, who shall be fully responsible for any theft or damage to any material, equipment or to portion of the work until Project Final Acceptance.

C. Security provisions shall be provided 24 hours a day, 7 days a week, including holidays, until acceptance of the Project by District.

D. If security personnel are used, provide District's Representative with the name and pager number or 24-hour telephone number of a contact person who shall have primary responsibility for security.

2.18 DUST CONTROL

A. Blowing dust shall be reduced by timing construction activities so that paving begins as soon as possible after completion of grading and by landscaping disturbed soils as soon as possible.

B. All portions of the site shall be watered as many times a day as required to ensure proper dust control seven (7) days a week for the duration of the Project.
   1. Sprinkle unpaved construction areas with water at least twice per day or as necessary to eliminate dust.
   2. Cover stockpiles of soil, sand, and other similar materials.
   3. Cover trucks hauling debris, soil, sand, and other similar materials.

C. The Contractor shall obtain reclaimed water from the City, if available, for compliance with the above requirements.

D. The Contractor shall maintain and operate construction equipment so as to minimize exhaust emissions of PM10 and other pollutants by means of the following:
   1. Prohibition on idling of motors of equipment that is not in use and by waiting trucks.
   2. Implementation of specific maintenance programs to reduce emissions for equipment in frequent use during construction.

PART 3 - EXECUTION

3.01 SYSTEMS

A. Maintain and operate systems to assure continuous service.

B. Modify and extend systems as work progress requires.

3.02 STORM WATER POLLUTION PREVENTION

A. Contractor shall be required to adhere to the project's Storm Water Pollution Prevention Plan (SWPPP) prepared and approved for this Project.

3.03 MAINTENANCE AND REMOVAL

A. Maintain temporary facilities and controls as long as needed for safe and proper completion of the work.

B. Completely remove temporary materials and equipment when their use is no longer required.

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

D. After removal of temporary facilities, restore existing facilities used for temporary services back to an "as was" or better condition subject to the discretion of the District's Representative.

E. Full compensation for cleanup shall be included in other items of work. No separate compensation will be allowed for work pertaining to cleanup or disposal of material.

END OF SECTION

SECTION 01 57 23

STORMWATER POLLUTION PREVENTION

PART 1 - GENERAL

1.01 SUMMARY

A. Construction shall adhere with the requirements of the California State Water Resource Control Board, General Permit for Storm Water Discharges Associated with Industrial Activities (General Permit). Project construction is covered under the General Permit WDID#: _____.

B. The project Stormwater Pollution Prevention Plan (SWPPP) applies to operations within the limits of work and adjacent points of discharge that may be outside the limits of work. The SWPPP describes the proposed facilities, identifies potential sources of pollution and recommends appropriate Best Management Practices (BMPs) to reduce the discharge of pollutants. The contractor shall be strictly held to the requirements of the General Permit and shall provide the services of Qualified Stormwater Practitioner (QSP) as the agent to the District, who is the Legally Responsible Person (LRP).

C. Scope of work:
Provide such work to satisfy the requirements of the General Permit including but not limited to:
1. Qualified Stormwater Practitioner (QSP) services.
2. Install, adjust and maintain all necessary; BMPs, non-stormwater pollutants, safe storage, hazardous material controls and construction activities to protect discharge with best available technology.
3. Monitoring, testing and action plans as required by the project SWPPP Document.
4. Amend the SWPPP whenever there is a change in construction or operations that will affect the discharge of pollutants, or change in schedule delaying completion of grading activities beyond completion date identified in the project SWPPP.
5. All necessary data entry submit documentation to the Storm Water Multiple Application and Report Tracking System (SMARTS) during construction and closeout.

D. Related sections can include, but may not be limited to the following:
1. Section 01 50 00 - Construction Facilities and Temporary Controls
2. Section 02 41 00 - Site Clearing and Demolition
3. Section 31 20 00 - Earthwork

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. California State Board of Water Resources Construction General Permit Order 2009-0009-DWQ

A. SWPPP Document WDID#_____

B. California Stormwater Quality Association (CASQA) Industrial and Commercial BMP Handbook.

1.03 MONITORING AND TESTING:

A. Monitoring, testing, and action plans documentation required by the project SWPPP Document, and/or as required by the General Permit.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.01 PREPARATION, MONITORING AND DOCUMENTATION

A. Prior to installing any portion of the work, the contractor shall examine the site and verify that site conditions are acceptable to begin work.

B. Prior to grading and demolition operations, the contractor shall install and manage all necessary BMPs with best available technology, making all necessary adjustments for the duration of construction.

C. Contractor shall be responsible for all necessary, modifications and additions to the BMPs and site conditions to meet the requirements of the General Permit at no additional cost to the District.

D. Regardless of construction schedule or weather conditions, it shall be the contractor's responsibility to; provide all necessary measures, adjust BMPs, protect discharge from pollutants and take necessary actions should numeric action levels be triggered, at no additional cost to the District.

E. Contractor shall provide QSP to conduct all monitoring and testing and prepare action plans as required by the project SWPPP.

F. The contractor shall amend the SWPPP and prepare the COI whenever there is a change in construction or operations that will affect the discharge of pollutants or change in schedule that will delay completion of grading activities beyond completion date identified in the project SWPPP.

G. Contractor shall prepare, track and submit all necessary documentation to SMARTS during construction and closeout. This shall include filing all required Ad Hoc reports, Annual Reports, and the Notice of Termination on the SMARTS site.

END OF SECTION

SECTION 01 71 23

FIELD ENGINEERING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Field engineering services for proper completion of the Work including, but not necessarily limited to:
   1. Establishing and maintaining lines and levels.
   2. Structural design of shoring, forms, and similar items provided by the Contractor as part of its means and methods of construction.
   3. Excavations and elevations, footings and piers required for installation of work items.
   4. Establishing horizontal and vertical control for site construction items.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Submittal Procedures: Informational submittals shall be submitted in accordance with Section 01 33 00 - Submittal Procedures.

1.03 INFORMATIONAL SUBMITTALS

A. Name and address of surveyor or professional engineer to the District's Representative.

B. Upon request of the District's Representative, submit:
   1. Data demonstrating qualifications of persons proposed to be engaged for field engineering services.
   2. Documentation verifying accuracy of field engineering work.
   3. Certification, signed by the Contractor's retained field engineer, certifying that elevations and locations of improvements are in conformance or nonconformance with requirements of the Contract Documents.

1.04 QUALITY ASSURANCE

A. Contractor shall employ a California Registered Civil Engineer or Licensed Land Surveyor, hereafter referred to as Surveyor, to lay out the entire work and set grades, lines, levels, and positions throughout the site.

1.05 SURVEY REFERENCE POINTS

A. Existing horizontal and vertical control points for the Project are those designated on the Drawings. Locate and protect these control points prior to starting site work and preserve permanent reference points during construction.

B. Do not change or relocate reference points or items of the work without specific review and acceptance by the District's Representative.

C. Promptly advise the District's Representative when a reference point is lost, destroyed, or requires relocation because of other changes in the work. Upon direction of the District's Representative, replace reference stakes or markers according to the original or appropriate survey control.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 LAYING OUT THE WORK

A. Prior to beginning work, locate or set all general reference points, benchmarks, establish monuments and take action as necessary to prevent their destruction, then layout all lines, elevations, and measurements for entire work.

B. Verify figures and dimensions shown on the Drawings and on surveys furnished by the District before starting work. Notify the District's Representative immediately of any discrepancies and re-direct work to avoid delay.
   1. Contractor shall accept responsibility for errors resulting from failure to notify District's Representative of known discrepancies.
   2. Offsets will be as agreed upon, in writing, by the Contractor and the District's Representative.

C. Establish monuments on curbs, manholes or pavements with concrete embedded steel pipe with lead plug and/or brass nail with washer, as acceptable to the District's Representative.

D. Verify layout from time to time as work progresses.

3.02 RECORDS

A. Maintain a complete and accurate log of all control and survey Work as it progresses in accordance with the requirements of Section 01 78 39 - Project Record Documents. Show exact locations of the monuments if any are disrupted or destroyed.

END OF SECTION

SECTION 01 77 00

CONTRACT CLOSE-OUT

PART 1 - GENERAL

1.01 SUMMARY

A. Scope of work: This section specifies administrative and procedural requirements for project close-out, that may include but are not necessarily limited to:
   1. Inspection and/or observation procedures
   2. Project record document submittal
   3. Operating and maintenance manual submittal
   4. Warranty submittal
   5. Final cleaning

B. Related sections can include, but may not be limited to the following:
   1. All pertinent Sections of the Specifications

1.02 SUBSTANTIAL COMPLETION

A. Refer to the General Provisions as applicable, and section 01 42 00 for procedures required to establish Substantial Completion.
   1. Final, regular Certificate for Payment (progress payment) shall be issued when all pertinent requirements of the achieving Substantial Completion are met. Final retention payment shall be made after project Final Acceptance and conclusion of any specified Landscape Maintenance Periods subject to the discretion of the District's representative.

B. inspection Procedures: Upon receipt of a request for inspection or observation, the District's representative shall either proceed or advise the Contractor of unfilled requirements. The District's representative shall prepare the Certificate of Substantial Completion following review or advise the contractor of what must be completed or corrected by "punch-list" before the Certificate is issued. Upon receipt of "punch-list", contractor shall complete all work described in a timely manner subject to the discretion of the District's Representative.
   1. The District's representative shall repeat inspection and/or observation when requested provided the contractor has made the request within the specified lead time and given written assurance that the "punch-list" work has been completed.
   2. Results of the completed inspection and/or observation shall help form the basis of requirements for Final Acceptance and if acceptable, may signal the beginning of the specified Landscape Maintenance Period.

1.03 UNCORRECTABLE WORK

A. Should the District's representative determine it is not practical or possible for the contractor to correct work that is damaged or improperly executed, an equitable deduction from the Contract sum may be made at the sole discretion of the District's representative.

1.04 CLOSE-OUT SUBMITTALS

A. Submit two (2) copies of the following, where applicable, in accordance with applicable Contract Documents:
   1. Project record documents (as-constructed)

2. Operation and maintenance manuals
3. Warranties, guaranties, and bonds
4. Keys and keying schedule
5. Spare parts and extra materials
6. Other items required by the Specifications
7. Binder of all manufactured items final submittal information that were installed or provided for the project.

B. Specified number of copies of above close-out submittals shall be received and accepted by the District's representative before Final Acceptance shall be given.

C. In addition to those items previously mentioned in this section, the contractor shall submit to the District's representative the following items before a Notice of Completion will be filed:
1. Up-to-date sub-contractor list with names, addresses and telephone numbers.

D. Final Adjustment of Account:
1. Submit a final statement of accounting to the District's representative showing all adjustments to the Contract sum.

1.05 MAINTENANCE MANUALS

A. Submit two (2) copies of proposed manual(s) to the District's representative for review and acceptance. All maintenance manuals shall be received and accepted by the District's representative before Final Acceptance shall be given.

B. Organize operating and maintenance data into properly indexed heavy duty 2-inch, 3-ring vinyl covered binders. Mark appropriate identification on front and spine of each binder. Manuals can include but are not limited to the following types of information:
1. Emergency instructions
2. Spare parts list
3. Copies of warranties or actual warranty cards
4. Wiring diagrams
5. Recommended "turn around" cycles
6. Inspection procedures
7. Shop drawings and product data
8. Fixture lamping schedule

C. Product submittal items (1.04-A-7) can be provided with warranty information binders.

1.06 DEMONSTRATION

A. Prior to Final Acceptance, the contractor shall fully instruct District's representative's designated operating and maintenance personnel in the operation, adjustment and maintenance of all products, equipment, and systems installed.
1. Provide services of factory trained instructors from the manufacturers of each major item of equipment or system, if necessary or requested by the District's representative.

B. Operation and maintenance manual(s) shall be fully described at this instruction meeting.
1. Review contents of manual(s) with personnel in full detail to explain all aspects of operations and maintenance such as:
a. Maintenance manuals
b. Record documents
c. Spare parts and materials

d. Tools
e. Fuels
f. Identification systems
g. Control sequences
h. Hazards
i. Cleaning
j. Warranties and bonds
k. Maintenance agreements and similar continuing commitments.

2. As part of instruction for operating equipment, demonstrate the following procedures:
   a. Start-up
   b. Shutdown
   c. Emergency operations
   d. Noise and vibration adjustment
   e. Safety procedures
   f. Economy and efficiency adjustments
   g. Effective energy utilization

1.07 WARRANTY/GUARANTY FORMAT

A. Provide written warranties, guaranties (except manufacturers' standard printed warranties and/or guaranties), addressed to the District's representative, in the format shown within the General Provisions. Manufacturers' standard printed warranties and/or guaranties shall be submitted as-is.

B. Warranties and guaranties shall be submitted in duplicate, in the format shown within the General Provisions, signed by all pertinent parties and by the contractor in every case, with modifications as accepted by the District's representative to suit the conditions pertaining to the warranty or guaranty. Collect and assemble written warranties and guaranties into bound booklet form and deliver bound books to the District's representative for review.

1.08 REMOVAL OF TEMPORARY FACILITIES

A. Prior to final inspection, the contractor shall remove tools, materials, sheds, temporary power poles, temporary tree protection, and other articles from the project site. Should the contractor fail to take prompt action, the District's representative may, given 30 days written notice, treat them as abandoned property.

1.09 FINAL SITE CLEANING

A. Broom clean and power wash exterior paved surfaces and adjacent public streets. Utilize appropriate cleaning methods to remove spills, stains, tire tracks, etc. from all paved surfaces. Rake clean other surfaces of the site.

B. Hose down and scrub walls and paving surfaces dirtied or stained as a result of the construction work, as directed by the District's representative.

C. Remove from the site construction waste, unused materials, excess earth, and debris resulting from the work.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01 78 39

PROJECT RECORD DOCUMENTS

1.01 SUMMARY

A. Section Includes: Requirements for preparing, maintaining, and submitting the Project Record documents.

B. Related Requirements:
   1. All applicable sections

1.02 DOCUMENT MAINTENANCE

A. Maintain one record copy of each of the following at the site for the District:
   1. Contract Drawings, Specifications, Addenda, Change Orders, RFIs and other modifications marked currently to record changes made during construction.
   2. Reviewed submittals.
   3. RFI log.
   4. Addenda log.
   5. Submittal log.
   6. Inspection reports and log.

B. Documents shall be kept at the site and maintained in a clean, dry, legible condition.

C. The Contractor shall advise the District's Representative of changes and deviations made during construction.

D. Make documents available at all times for review by District's Representative.

E. Comply with related requirements of the individual Specification Sections.

F. Maintenance of Record Drawings shall be delegated to one person on Contractor's staff who will be present at all meetings.

1.03 RECORDING

A. Label each document "PROJECT RECORD."

B. Do not permanently conceal any work until required information has been recorded.

C. Drawings:
   1. Make day-to-day changes and notations on a specially designated complete "Job Set" of prints or digital files as the work proceeds.
   2. Markings and notations shall be neatly and accurately made, using nonfading, clear, permanent markings. Use contrasting colors for different disciplines of work and where required for clarity.
   3. Clearly identify deviations by drawing a "cloud" around affected area and make sufficient notations to describe the change.
   4. Convert schematic layouts to portray precise physical layout (including depths) of exposed and concealed work.
   5. Drawings shall be marked to indicate:
      a. Measured depths of various elements of foundation in relation to survey or other approved datum.
      b. Measured horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements.

c. Measured locations of utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.
d. Variations in layout of site improvements.
e. Field changes of dimensions and detail.
f. Changes made by Change Order or Construction Change Directive.
g. Significant details not shown on the original Contract Drawings.

6. Contractor shall solely bear any cost of uncovering, recording and re-covering work not recorded on Job Set.
7. Upon completion of the Work and unless otherwise mutually agreed between District and Contractor, all changes and notations shall be neatly and accurately transferred by the Contractor to a complete set of Drawings, as originally issued for construction, obtained from the District.
   a. Where the Contract Drawings are not of sufficient size and detail, the Contractor shall furnish its own drawings for incorporation of details and dimensions.
   b. Each sheet of record drawing shall be signed and certified by the Contractor as to their correctness and turned over to the District's Representative.
8. Record Drawings are specifically required for the following work:
   a. All applicable sections

D. Specifications:
1. On a complete and designated copy or digital file of the Project Manual, legibly mark each Specification Section to record:
   a. Manufacturer, trade name, catalog number, color designation (if applicable), and supplier of each product and item of equipment actually installed.
   b. Changes made by Addendum, Change Order, or Construction Change Directive.
   c. Other matters not originally specified.
   d. Where selection of manufacturers is offered, indicate which manufacturer's product was installed.

E. Product Data: Maintain one copy or digital file of each product data submittal. Note related Change Orders and markup of Contract Drawings and Specifications.
1. Mark these documents to show significant variations in actual work performed in comparison with information submitted. Include variations in products delivered to the site and from the manufacturer's installation instructions and recommendations.
2. Give particular attention to concealed products and portions of the Work that cannot be readily reviewed by direct observation.

F. Samples: Immediately prior to Substantial Completion, meet with District's Representative and District's personnel at the Project site to determine which samples are to be transmitted to the District for record purposes. Comply with the District's instructions regarding delivery to the District's storage area.

G. Miscellaneous Record Submittals: As specified in other Specification Sections.
1. Immediately prior to Substantial Completion, complete these miscellaneous records and place in good order.
2. Identify miscellaneous records properly and bind or file, ready for continued use and reference. Digital files are acceptable.
3. Submit for the District's records as directed.

1.04 INTERIM REVIEW

A. Project Record Documents are subject to review at time of review of payment request.

B. If Record Documents are not properly maintained, District may withhold all or a portion of payment to Contractor.

1.05 SUBMITTALS

A. At completion of work under the Contract, deliver Record Documents as directed.

B. Partial submittals are not acceptable, unless specifically acceptable to District.

C. Submit documents specified and required prior to claim for final Application and Certificate for Payment.

D. Accompany submittal with transmittal letter, in duplicate, containing:
   1. Date.
   2. Title of Work.
   3. Contractor's name and address.
   4. Title of each Record Document.
   5. Certification that each document, as submitted, is complete and accurate.
   6. Signature for Contractor or its authorized representative.

END OF SECTION

SECTION 02 41 13

SITE CLEARING AND DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Site clearing and demolition work and related activities as shown on the Drawings and specified herein. The general extent of the site clearing and demolition work includes, but is not necessarily limited to, the following:
   1. Demolition, removal and disposal of designated items.
   2. Careful removal, protection and re-installation of designated items.
   3. Careful removal and salvage of designated items.
   4. Disconnection and capping of existing utility and irrigation lines.
   5. Incidental demolition of abandoned utility and irrigation lines.
   6. Spraying until dead, clearing, grubbing vegetated areas and rototilling in existing turf areas.

B. Related Requirements:
   1. Section 31 20 00 - Earth Moving

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. State of California, Business and Transportation Agency, Department of Transportation (Caltrans) "Standard Specifications."

1.03 ADMINISTRATIVE REQUIREMENTS

A. Submittal Procedures: Action Submittals shall be submitted in accordance with Section 01 33 00 - Submittal Procedures.

1.04 ACTION SUBMITTALS

A. Product Data: Manufacturer's product information on herbicides to be used for approval prior to use.

1.05 INFORMATIONAL SUBMITTALS

A. Schedule: Indicate the proposed timeline for site clearing and demolition work including shut off times and capping of utility services on the project schedule.

1.06 QUALITY ASSURANCE

A. The District will obtain and pay for all permits required in connection with this work. Fees for the dumping of debris shall be paid for by the Contractor.

1.07 FIELD CONDITIONS

A. Dust Control:
   1. The Contractor shall prevent the formation of airborne dust on and around the project site with the use of sprinkled water or other means acceptable to the District's Representative. Non-compliance with proper dust control measures may be grounds for issuance of a "stop work" order by the District until satisfactory measures are implemented.

B. Utility Services:

1. Issue written notices of planned demolition operations to utility companies and coordinate site clearing and demolition improvements as requested by the utility companies.
2. Existing power poles and lines serving existing occupied buildings shall remain. Arrange work in order to maintain utilities not designated for removal.
3. Coordinate work in order to maintain utilities to temporary on-site facilities.

PART 2 - PRODUCTS

2.01 HERBICIDES

A. Herbicides shall conform to District's approved chemicals list.

B. Herbicide shall be non-selective broad-spectrum systemic herbicide for perennial vegetation and straight contact herbicide for annual vegetation in accordance with a licensed pest control advisor or herbicide manufacturers' recommendations.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Conform to applicable requirements of Section 01 45 00 - Quality Control.

B. Carefully identify limits of demolition and site clearing.

C. Mark project areas in coordination with the District's Representative and as necessary to clearly identify the interface of items to be removed and items remain.

3.02 PREPARATION

A. Protection:
1. Make provisions and take necessary precautions to protect all existing items not designated for removal. An existing item or area damaged during construction operations shall be replaced or repaired to an "as-was" or better condition at no additional cost to the District and subject to the acceptance of the District's Representative.
2. Erect barriers, fences, guard rails, enclosures, chutes, and shoring as necessary to protect personnel, structures, and utilities to remain.
3. Provide warning signs and lighting as necessary for vehicular and personnel protection. Maintain warning signs during construction as required by applicable safety ordinances and as reasonably prudent.
4. Coordinate arrangements for items to be salvaged and turned over to the District.
5. Notify Underground Service Alert (USA), (800) 640-5137, and local utility companies to verify locations of existing utilities a minimum of 48 hours prior to beginning work.
6. Provide tree protection fencing prior to commencing demolition and site clearing work.

B. Traffic Access:
1. Ensure minimum interference with roads, streets, driveways, sidewalk and adjacent facilities.
2. Do not close or obstruct streets, sidewalk, alleys or passageways without acceptance from the District's Representative or governing authorities as applicable.
3. Provide approved alternate routes around closed or obstructed traffic ways as required by the District's Representative.
4. Maintain access to adjacent existing buildings to ensure uninterrupted operations during demolition work.

3.03 DEMOLITION

A. General: Refer to the Drawings for extent of demolition and site clearing work.

B. Paving: Demolish paving in accordance with local noise ordinance regulations and as acceptable to the District's Representative.

C. Filling:
1. Completely fill below-grade areas and voids resulting from demolition work.
2. Install appropriate, acceptable fill material consisting of soil, gravel, or sand, free of trash and debris, stones over 6-inch diameter, roots, or other organic matter. Meet fill and compaction requirements specified and recommended by the District's Geotechnical Engineer.

D. If unanticipated mechanical, electrical or structural elements which conflict with intended function or design are encountered, investigate and measure both the nature and extent of the conflict. Submit report to District's Representative in written, accurate detail. Pending receipt of response from District's Representative, rearrange selective demolition and site clearing schedule as necessary to continue overall job progress without delay.

3.04 CLEARING AND GRUBBING

A. Prior to site clearing, existing vegetation below 12 inches in height and turf areas to be removed shall be sprayed with a non-selective broad spectrum systemic herbicide for perennial vegetation and straight contact herbicide for annual vegetation in accordance with a licensed pest control advisor or herbicide manufacturers. recommendations.

B. Allow a sufficient period of time to ensure that all sprayed vegetation is dead. Refer to manufacturer's recommendations.

C. Irrigation heads, valves, and controllers shall be salvaged and provided to District.

D. Clear/strip vegetative material from soil surface and remove unless noted otherwise. Existing turf areas to be removed need to be stripped to remove organic soil.

E. Utilities and Related Equipment:
1. The locations of existing utilities, as may be shown on the Drawings, are approximate. Should existing utilities not shown on the Drawings be encountered during construction operations, notify the District's Representative immediately, and re-direct work to avoid delay. The District's Representative will then determine what action, if any, is required.
2. Remove abandoned utilities as indicated and as uncovered by the work and terminate in a manner conforming to code.
3. Remove and salvage designated items and related equipment and deliver to a location acceptable to the District's Representative.

F. Underground Piping:
1. Existing storm drain and irrigation systems, as may be shown on the Drawings, shall be modified to allow for construction of new items and systems as a part of this project. Caution shall be exercised so as not to damage underground piping not scheduled for removal.
2. Remove underground piping as indicated or necessary and backfill to specified compaction density.
3. Existing piping abandoned but not removed shall be backfilled with slurry fill (grout), and ends shall be capped with concrete.
4. Manholes and lines scheduled for removal which connect to active systems shall have their active remaining portions capped, plugged, or blind-flanged as appropriate.

5. Materials used for pipe terminations and temporary connections shall be the same as the existing lines. Fittings and flanges shall be of weight and class suitable for the service in which used.

3.05 SALVAGE

A. Demolition:
   1. Materials or equipment to be demolished shall become the property of the Contractor except for items specified or noted on the Drawings to be salvaged for the District.
   2. Carefully remove items to be salvaged to avoid damage.
   3. Irrigation heads, valves and existing controller shall be salvaged and provided to District. Contractor shall clean and box items. Items shall be returned to District in accordance with instructions provided by the District.

B. Replacement: In the event items not scheduled to be demolished are damaged, promptly replace or repair such items to an as-was or better condition per the discretion of the District's Representative at no additional cost to District.

C. Materials scheduled for removal shall not be placed on view to prospective purchasers or sold on site.

3.06 CLEANING

A. Debris and Rubbish:
   1. Remove and transport debris and rubbish as it accumulates and dispose in a legal manner via recognized haul routes in accordance with Section 01 50 00 - Temporary Facilities and Controls in a manner that will prevent spillage on streets or adjacent areas.
   2. Remove tools, equipment and appliances used for demolition from the site upon completion of the work.
   3. Clean entire project area, adjacent streets, and pavements to a broom-clean, "stain-free" condition per the discretion of the District's Representative.

END OF SECTION

SECTION 13 11 00

SWIMMING POOL GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 WORK INCLUDED

A. The scope of the work included under this Section of the Specifications shall include swimming pool(s) as illustrated on the Drawings and specified herein. The General and Supplementary Conditions of the Specifications shall form a part and be included under this Section of the Specifications. The Swimming Pool Subcontractor shall provide all supervision, labor, material, equipment, machinery, plant and any and all other items necessary to complete the work. ALL OF THE WORK IN SECTIONS 13 11 00 – 13 11 06 IS TO BE THE RESPONSIBILITY OF ONE EXPERIENCED SWIMMING POOL SUBCONTRACTOR PRIMARILY ENGAGED IN THE CONSTRUCTION OF COMMERCIAL PUBLIC-USE SWIMMING POOLS. A SWIMMING POOL SUBCONTRACTOR SHALL BE CONSIDERED PRIMARILY ENGAGED AS REQUIRED HEREIN IF THE SUBCONTRACTOR DERIVED 50% OF ITS ANNUAL REVENUE FROM PUBLIC-USE SWIMMING POOL CONSTRUCTION FOR EACH OF THE LAST FIVE YEARS. THE SUBCONTRACTOR MUST HAVE ALSO, IN THE LAST FIVE YEARS CONSTRUCTED AT LEAST FIVE (5) COMMERCIALLY DESIGNED MUNICIPAL AND PUBLIC-USE SWIMMING POOLS, EACH OF WHICH SHALL HAVE INCORPORATED A MINIMUM SIZE OF 6,000 SQUARE FEET OF WATER SURFACE AREA WITH A CONCRETE AND CERAMIC TILE PERIMETER OVERFLOW GUTTER AND SELF-MODULATING BALANCE TANK. The Swimming Pool Subcontractor shall furnish and install the swimming pool finishes and all accessories necessary for a complete, functional swimming pool system, as herein described. Work shall include start-up, instruction of Owner's personnel, as-built drawings and warranties as required.

1.02 CODES, RULES, PERMITS, FEES

A. The swimming pools shall be constructed in strict accordance with the applicable provisions set forth by authorities having jurisdiction over swimming pool construction and operation in the State of California.

B. The Swimming Pool Subcontractor shall give all necessary notices, obtain all permits, and pay all government sales taxes, fees, and other costs in connection with their work; file all necessary plans, prepare all documents and obtain all necessary approvals of governmental departments having jurisdiction; obtain all required certificates of inspection for their work and deliver same to the Designated Representative before request for acceptance and final payment for the work.

C. The Swimming Pool Subcontractor shall include in the work any labor, materials, services, apparatus, or drawings in order to comply with all applicable laws, ordinances, rules and regulations, whether or not shown on Drawings and/or specified.

D. The Contractor shall submit all required documents and materials to all Governmental Departments having jurisdiction for any deferred approval items or substituted materials or products to obtain final approval to installation.

1.03 DESCRIPTION OF WORK

A. Furnish and perform supervision, coordination, all layout, formwork, excavation, hand trim, disposing off-site of all unused material or debris to complete the swimming pool excavation to the dimensions shown on the plans.

B. Furnish and install swimming pool finishes, including ceramic tile and marble plaster or other waterproof finishes.

C. After the initial filling of the swimming pool system(s), should any repairs, continuing work, or other

Subcontractor responsibility require drainage or partial drainage of the swimming pool systems, the Swimming Pool Subcontractor shall be responsible for any subsequent refilling and shall complete the project with the swimming pool system(s) full of water, water in chemical balance, complete in every way, and in full operation.

1.04 ASSIGNED RESPONSIBILITIES AND RELATED WORK

A. It is the intent of this section of the Specifications to clarify Work responsibilities of the trades directly and indirectly involved in construction of the pool systems. All labor, equipment, materials and supplies furnished by the Swimming Pool Subcontractor and other Subcontractors per the contractual agreement with the General Contractor and Owner shall be as directed by the Owner through their Designated Representative.

B. THE SWIMMING POOL SUBCONTRACTOR SHALL NOT SUBCONTRACT ANY PORTION OF THE SWIMMING POOL CONSTRUCTION OR SWIMMING POOL EQUIPMENT INSTALLATION TO ANYONE OTHER THAN A SUBCONTRACTOR THAT SATISFIES THE REQUIREMENTS OF SECTION 13 11 00

C. References to “swimming pool systems” shall include the swimming pools, equipment, and accessories.

D. The Owner will provide one complete water filling of the swimming pool(s), but will not assume any responsibility for the swimming pool system(s) until they have been proved fully operational, complete in every way and accepted by the Designated Representative.

1.05 RESPONSIBILITIES OF THE CONTRACTOR

A. The Contractor shall provide adequate temporary light, electric power, heat and ventilation per Federal and State OSHA requirements to construct the swimming pool system(s).

B. The Contractor shall not permit any heavy equipment activity over any area or within five (5) feet of any area under which swimming pool piping is buried. There shall be no exceptions to this requirement.

C. The Contractor shall keep the swimming pool structure(s) free of construction residue and waste materials of their workmen or Subcontractors, removing said material from the swimming pools as required.

D. The Contractor shall protect the swimming pool(s) from damage caused by their construction equipment and /or workmen and Subcontractors.

E. The Contractor shall provide a representative at time of swimming pool start-up to coordinate all trades related to swimming pool system(s).

1.06 RESPONSIBILITIES OF THE ELECTRICAL SUBCONTRACTOR

A. The Electrical Subcontractor shall be licensed in the State of California.

B. The Electrical Subcontractor shall furnish any temporary power needed by the Swimming Pool Subcontractor within fifty (50) feet of the swimming pool construction site(s).

C. All equipment, material and installation shall be as required under Division 16 of the Specifications and shall conform to NEC Article 680 (latest revision), State and Local Codes, and as may be required by all authorities having jurisdiction over swimming pool construction within the State of California.

D. The Electrical Subcontractor shall provide a representative at time of swimming pool start-up to

coordinate work related to swimming pool system(s).

1.07 INTENT

A. It is the intention of these specifications and Drawings to call for finished work, tested and ready for operation. Wherever the work "provide" is used, it shall mean "furnish and install complete and ready for use."

B. Minor details not usually shown or specified, but necessary for proper installation and operation, shall be included in the work, the same as if herein specified or shown.

1.08 SCHEDULE OF VALUES

A. Provide a Schedule of Values for all work specified in each of the technical specifications listed in the table below, regardless of whether the work is performed by the swimming pool contractor or others. Values listed shall be fully burdened, with contractor general conditions, overhead, profit and bonds included. Payments for swimming pool work completed shall not be approved until Schedule of Values has been submitted to and approved by Architect.

SWIMMING POOL SCHEDULE OF VALUES			
No.	Section #	Description	Value
1.	13 11 02	Swimming Pool Concrete	
2.	13 11 04	Swimming Pool Ceramic Tile	
3.	13 11 05	Swimming Pool Plaster	
4.	13 11 06	Swimming Pool Equipment	
5.	13 11 08	Swimming Pool Electrical	

1.09 SUBMITTAL PROCEDURES

A. General: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Architect for Subcontractor's use in preparing submittals.

B. Coordination: Coordinate preparation and processing submittals with performance construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
      a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation" for list of submittals and time requirements for schedules performance of related construction activities.

D. Processing Time: Allow enough time for submittal review, including time for re-submittals as follows. Time for review shall commence on Architect's receipt of submittal.
   1. Initial Review: Allow fifteen (15) days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Architect will advise Contract when a submittal being processed must be delayed for coordination.
   2. Concurrent Review: Where concurrent review of submittals by Architect's consultants,

Owner, or other parties is required, allow twenty-one (21) days for initial review of each submittal.

3. Direct Transmittal to Consultant: Where the Contract Documents indicate that submittals may be transmitted directly to Architect's consultants, provide duplicate copy of transmittal to Architect. Submittal will be returned to Architect before being returned to Subcontractor.
4. If intermediate submittal is necessary, process it in same manner as initial submittal.
5. Allow fifteen (15) days for processing each submittal.
6. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.

E. Identification: Place a title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on title block.
2. Provide a space on title block to record Subcontractor's review and approval markings and action take by Architect.
3. Include the following information on title block for processing and recording action taken: (See Attached Sample)
   a. Project name.
   b. Date.
   c. Name and address of Subcontractor.
   d. Name of Subcontractor.
   e. Name of Supplier.
   f. Name of Manufacturer.
   g. Unique identifier, including revision number.
   h. Number and title of appropriate Specification Section.
   i. Drawing number and detail references, as appropriate.
   j. Other necessary identification.

SUBMITTAL FOR:	SUBMITTAL TO:	SUBCONTRACTOR:

Item Number: _____
Section Number: _____
Section Description: _____
Subcontractor: _____
Supplier: _____
Manufacturer: _____
Product Code: _____
Quantity: _____

Subcontractor Certification:

It is hereby certified that the equipment or material designated in this submittal is proposed to be incorporated in the above-named project and is in compliance with the contract drawings and / or specifications and is submitted for approval.

Certified by: _____
Date: _____
Job Superintendent: _____
Revisions: _____

Contractor's Submittal Stamp:

Architect's Review Stamp and Comments

F. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract documents on submittal.

G. On all catalogue or cut sheets identify which model or type is being submitted.

H. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Product data and shop drawings shall be packaged within a three-ring binder and colored samples shall be packaged on a heavy cardboard. Transmit each submittal using a transmittal form.
   1. On an attached separate sheet, prepared on Subcontractor's letterhead, record relevant information, request for data, revisions other than those requested by Architect on previous submittals and deviations from requirements of the Contract documents, including minor variations and limitations. Include the same label information as the related submittal.
   2. Include Subcontractor's certification stating that information submitted complies with requires of the Contract Documents.
   3. Transmittal Form: Provide locations on form for the following information:
      a. Project name.
      b. Date.
      c. Destination (To:).
      d. Source (From:).
      e. Names of Subcontractor, manufacturer, and supplier.
      f. Category and type of submittal.
      g. Submittal purpose and description.
      h. Remarks.

I. Distribution: Furnish copies of final submittals to manufacturers, Subcontractors, suppliers, fabricators, installers, authorities having jurisdiction and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Use only final submittals with mark indicating action taken by Architect in connection with construction.

1.10 SUBSTITUTIONS

A. To obtain approval to use unspecified products, bidders shall submit requests for substitution at least ten (10) days prior to bid date. Requests shall only be considered if they clearly describe the product for which approval is asked, including all data necessary to demonstrate acceptability. All unspecified products and equipment will be considered on an “or equal” basis at the discretion of the Designated Representative. Requests for substitution received after the specified deadline will not be considered. Where a conflict exists between the requirements of the General Conditions / Special Conditions / Division 1 concerning substitutions and the requirements of this Article, this Article (Section 13 11 00, Article 1.10) shall govern.

B. Where the Swimming Pool Subcontractor proposes to use an item of equipment other than that specified or detailed on the Drawings which requires any redesign of the structure, partitions, foundations, piping, wiring, or any other part of the architectural, mechanical, or electrical layout, all such redesign and all new drawings (stamped by California Licensed Engineer) and detailing required shall be prepared by the Swimming Pool Subcontractor, at their own expense, submitted for review and approval by the Designated Representative prior to bid.

C. Where such approved deviation requires a different quantity and arrangement of piping, supports and anchors, wiring, conduit, and equipment from that specified or indicated on the Drawings, the Swimming Pool Subcontractor shall furnish and install any such piping, structural supports, controllers, motors, starters, electrical wiring and conduit, and any other additional equipment

required by the system, at no additional cost to the Owner.

1.11 SURVEYS AND MEASUREMENTS

A. The Swimming Pool Subcontractor shall base all measurements, both horizontal and vertical, from benchmarks established by the Contractor. All work shall agree with these established lines and levels. The mechanical Drawings do not give exact details as to elevations of piping, exact locations, etc. and do not show all offsets, control lines, pilot lines and other installation details. Verify all measurements at site and check the correctness of same as related to the work.

1.12 DRAWINGS

A. Drawings are diagrammatic and indicate the general arrangement of the systems and work included in the Subcontractor. Drawings are not to be scaled. The architectural drawings and details shall be examined for exact dimensions. Where they are not definitely shown, this information shall be obtained from the Designated Representative.

1.13 SWIMMING POOL SUBCONTRACTOR

A. The swimming pool construction work as herein described and specified in Division 13 of the Project Manual shall be the complete responsibility of a qualified and specifically licensed (C-53 license classification within the State of California) Swimming Pool Subcontractor with extensive experience in commercial public use swimming pool installations.

B. The Contractor shall require the Swimming Pool Subcontractor to furnish to the Contractor performance and payment bonds in the amount of 100% of the Swimming Pool Subcontractor's bid written by a surety Company properly registered in the State of California and listed by the U.S. Treasury. The expense of the bond(s) is to be borne by the Subcontractor. The Contractor shall clearly specify the amount and requirements of the bond(s) in the Contractor's written or published request for subbids. The Contractor's written or published request for subbids shall also specify that the bond(s) expense is to be borne by the Subcontractor.

C. Subcontractor certifies that it meets the qualifications and experience requirements established in Swimming Pool General Requirements, Section 13 11 00, as follows:
1. Subcontractor has derived 50% of its annual revenue from public-use swimming pool construction for each of the last five (5) years.
2. Subcontractor has, in the last five (5) years, constructed at least five (5) commercially designed municipal and public-use swimming pools, each of which have incorporated a minimum size of 6,000 square feet of water surface area with a concrete and ceramic tile perimeter overflow gutter and self-modulating balance tank.
3. The following list of projects meet the requirements of section (b) above and the contact as reference by the Contractor, the Awarding Authority of their agent or designee.

a. Owner: _____
Scope of Project: _____
Contact Person: _____
Phone Number: _____
Architect for Project: _____

b. Owner: _____
Scope of Project: _____
Contact Person: _____
Phone Number: _____
Architect for Project: _____

c. Owner: _____

Scope of Project: _____
Contact Person: _____
Phone Number: _____
Architect for Project: _____

d. Owner: _____
Scope of Project: _____
Contact Person: _____
Phone Number: _____
Architect for Project: _____

e. Owner: _____
Scope of Project: _____
Contact Person: _____
Phone Number: _____
Architect for Project: _____

D. Swimming Pool Deck Subcontractor other than the swimming pool Subcontractor certifies that it meets the qualifications and experience requirements established in Swimming Pool General Requirements, Section 13 11 00, as follows:

1. Subcontract has, in the last five (5) years, constructed at least five (5) commercially designed cantilevered pool decks over perimeter gutters, each of which have incorporated a minimum size of 6,000 square feet of water surface area of the swimming pool.
2. The following list of projects meet the requirements of section (b) above and the contact as reference by the Contractor, the Awarding Authority of their agent or designee.

SWIMMING POOL DECK SUBCONTRACTOR

a. Owner: _____
Scope of Project: _____
Contact Person: _____
Phone Number: _____
Architect for Project: _____

b. Owner: _____
Scope of Project: _____
Contact Person: _____
Phone Number: _____
Architect for Project: _____

c. Owner: _____
Scope of Project: _____
Contact Person: _____
Phone Number: _____
Architect for Project: _____

d. Owner: _____
Scope of Project: _____
Contact Person: _____
Phone Number: _____
Architect for Project: _____

e. Owner: _____
Scope of Project: _____

Contact Person: _____
Phone Number: _____
Architect for Project: _____

1.14 OPERATING INSTRUCTIONS

A. The Swimming Pool Subcontractor shall determine from actual samples of pool water supplied by the Owner, the proper water management program necessary for maximum operating efficiency and comfort. The Swimming Pool Subcontractor shall provide the services of experienced personnel familiar with this type of pool system operation, in conformance with Section 13 11 05 of the Specifications.

1.15 MAINTENANCE MANUALS

A. The Swimming Pool Subcontractor shall provide six (6) bound sets for delivery to the Designated Representative of instructions for operating and maintaining all systems and equipment included in this Contract. Manufacturer's advertising literature or catalog pictures will not be acceptable for operating and maintenance instructions.

B. Bound in ring binders shall be all parts lists, periodic maintenance instructions and troubleshooting guidelines for all pool equipment, including but not limited to filters, pumps, controllers, water chemistry control equipment, etc.

1.16 SECURE FROM THE OWNER

A. A complete Owner-furnished filling of the swimming pools.

B. The Owner's assistance, as specified herein, from the time of start-up until final written acceptance of the swimming pool system(s).

C. Chemicals as required for swimming pool operation after Swimming Pool Subcontractor completes initial water chemistry balance and water treatment during the maintenance period described in Section 13 11 05 of the Specifications.

1.17 WARRANTY

A. The Swimming Pool Subcontractor shall warrant all swimming pool structures, finishes and systems against defects in material and workmanship for a period of one year after the date of acceptance by the Owner. Any repair or replacement required due to defective material or workmanship will be promptly corrected by the Swimming Pool Subcontractor.

PART 2 PRODUCTS
NOT USED

PART 3 EXECUTION
NOT USED

END OF SECTION

SECTION 13 11 02

SWIMMING POOL CONCRETE

PART 1 GENERAL

1.01 WORK INCLUDED

A. Forming for cast-in-place concrete and shotcrete associated with swimming pools and pool decks.

B. Reinforcement for cast-in-place concrete and shotcrete associated with swimming pools and pool decks.

C. Cast-in-place concrete for swimming pool structures. Do not use waterproofing admixture of any kind.

D. Provide labor, materials and equipment as required to install sealant for all pool deck expansion joints, or any other caulking, as indicated on the aquatic Drawings and herein specified.

1.02 QUALITY ASSURANCE

A. Qualifications of Workers:
1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.
2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.

B. Standards:
1. In addition to complying with the California Building Code (2022 edition), comply with all pertinent recommendations contained in “Guide to Formwork for Concrete" Publication ACI 347R-14 of the American Concrete Institute.
2. In addition to complying with California Building Code (2022 edition), 1908A, ACI 318-19 and ACI 506R and ACI506.2 comply with all pertinent recommendations contained in “Guide to Presenting Reinforcing Steel Design Details,” Publication ACI 315R-18 of the American Concrete Institute.
3. In addition to complying with all local codes and regulations, comply with all pertinent recommendations contained in American Society for Testing and materials (ASTM); ASTM C 920 “Standard Specification for Elastometric Joint Sealants.”

C. Tolerances: Construct all swimming pool concrete straight, true, plumb and square within a tolerance horizontally of one in 200 and vertically of one in 2000.

1.03 SUBMITTAL AND SUBSTITUTIONS

A. Provide submittals in conformance with the requirements of Section 01 33 00. Requests for substitution shall conform to requirements of Article 1.10.A of Section 13 11 00.

B. Samples and Certificates, Concrete Reinforcement:

1. Provide all data and access required for testing as described in Section 01 45 00 of the Specifications.
2. All material shall bear mill tags with heat number identification. Mill analysis and report shall be made available upon request.
3. Material not so labeled and identifiable may be required by the Owner to be tested by the testing laboratory selected by the Owner and at no additional cost to the Owner, in which case random samples will be taken for one series of tests from each 2-1/2 tons or fraction thereof of each size and kind of reinforcing steel.
4. Design mix from batch plant demonstrating previous use history and associated strengths at 28 days.
5. The Contractor shall submit a mix design stamped and signed by a licensed engineer for approval by the Owner's Representative prior to any placement of concrete.
6. The Contractor shall submit a separate mix design stamped and signed by a licensed engineer for the swimming pool decks which contains the specified Xypex C-500 crystalline waterproofing admixture for approval by the Owner's Representative prior to any placement of concrete.

C. Submit proof of qualifications as specified in Article 1.02.A of this Section.

D. Submit reinforcing shop drawings for pool walls, gutters, floors, dike walls and balance tank, etc. as shown on the construction drawing.

1.04 PRODUCT HANDLING

A. Delivery: Deliver materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.

B. Storage: Store materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project Site.

C. Protection: Use all means necessary to protect the swimming pool concrete before, during, and after installation and to protect the installed Work specified in other Sections.

D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner.

PART 2 PRODUCTS

2.01 CONCRETE FORMWORK

A. Form Materials:

1. Form Lumber: All form lumber in contact with exposed concrete shall be new except as allowed for reuse of forms in Part 3 of this Section, and all form lumber shall be one of the following, a combination thereof, or an equal approved in advance by the Owner's Representative.
   a. "Plyform," Class I or II, bearing the label of the Douglas Fir Plywood Association; "Inner-Seal" Form as manufactured by Louisiana-Pacific, or approved equal.
   b. Douglas Fir-Larch, number two grade, seasoned, surfaced four sides.
2. Form Release Agent: Colorless, non-staining, free from oils; chemically reactive agent that shall not impair bonding of paint or other coatings intended for use.

B. Ties and Spreaders:

1. Type: All form ties shall be a type which do not leave an open hole through the concrete and which permits neat and solid patching at every hole.
2. Design: When forms are removed, all metal reinforcement shall be not less than two (2) inches from the finished concrete surface.
3. Wire Ties and Wood Spreaders: Do not use wire ties or wood spreaders.

C. Alternate Forming Systems: Alternate forming systems may be used subject to the advance approval of the Owner's Representative.

2.02 CONCRETE REINFORCEMENT

A. Bars: Bars for reinforcement shall conform to "Specifications for Deformed Carbon-Steel Bars for Concrete Reinforcement," ASTM A-615, Grade 60.

B. Wire Fabric: Wire fabric shall conform to ". "Specifications for Carbon Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete," ASTM A1064.

C. Tie Wire: Tie wire for reinforcement shall conform to "Specifications for Carbon Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete," ASTM A1064 black annealed 16-gauge tie wire.

2.03 CAST-IN-PLACE CONCRETE

A. Concrete:
1. All concrete, unless otherwise specifically permitted by the Owner's Representative, shall be transit-mixed in accordance with ASTM C94. Concrete for water retaining structures that do not receive a waterproofing finish such as ceramic tile or swimming pool plaster shall receive a topical waterproofing finish.
2. The control of concrete production shall be under the supervision of a recognized testing agency, selected by the Owner in accordance with Section 01 25 00 of the Specifications.
3. Quality: All concrete shall have the following minimum compressive strengths at twenty-eight (28) days and shall be proportioned within the following limits:
   a. 4,000 psi minimum compressive strength for cast-in-place concrete swimming pool structures.
   b. 1" maximum size aggregate.
   c. 6.0 minimum sacks of cement per cubic yard.*
   d. Maximum water to cement ratio of 0.40 minimum to 0.45 maximum.
   e. 4" maximum slump.
4. Cement: All cement shall be Portland Cement conforming to ASTM C-150, Type II or V and shall be the product of one manufacturer.
5. Aggregates:
   a. Shall conform to "Standard Specifications for Concrete Aggregates," ASTM C33, except as modified herein.
   b. Coarse Aggregate: Clean sound washed gravel or crushed rock. Crushing may constitute not more than 30% of the total coarse aggregate volume. Not more than 5% flat, thin, elongated or laminated material nor more than 1% deleterious material shall be present. 1" aggregate graded from 1/4" to 1", fineness modulus 6.90 to 7.40. 1-1/2" graded from ½" to 1-1/2", fineness modulus 7.80 to 8.20.
   c. Fine Aggregate: Washed natural sand of hard, strong particles and shall contain not more than 1% of deleterious material, fineness modulus 2.65 to 3.05.
   d. Aggregate must be certified, non-expansive from a "known" good source.

6. Water: ASTM C1602, Clean, fresh, free from acid, alkali, organic matter or other impurities liable to be detrimental to the concrete (potable).
7. Admixtures: Admixtures shall be used upon approval of the Owner's Representative.
   a. Air-entraining admixture: Conform to ASTM C260.
   b. Water-reducing admixture: Conform to ASTM C494.

B. Construction Joints: Use keyform for slab pour joints. Either preformed galvanized or PVC construction joint forms of a standard manufacturer may be used. Install per manufacturer's recommendations and tool edges of slabs.

C. Waterstops: PVC bulb-type for use between concrete pours / lifts, conforming with ASTM D 570, D 624, and D 638. Provide in configuration(s) as recommended by manufacturer for specific application. Greenstreak, W.R. Meadows, or approved equal.

D. Curing Materials:
1. Liquid Membrane (covered slab): Chlorinated rubber membrane forming, curing-sealing compound conforming to ASTM C309.
2. Liquid Membrane (exposed slab): Clear methyl and butyl methacrylate non-staining, membrane forming, curing-sealing compound conforming to ASTM C309.

E. Cement Grout and Drypack:
1. Cement Grout: Mix 1 part by volume of Portland Cement, 1/2 part by volume of water and fine aggregate enough to make mixture flow under its' own weight.
2. Drypack: Mix 1 part by volume of Portland Cement, 1/2 part by volume of water and fine aggregate enough to make a stiff mix that will mold into a ball. Mix no more than can be used in 30 minutes.

2.04 JOINT SEALANT MATERIALS

A. Caulking: Multipart, non-sag gun grade polyurethane-based sealant meeting the requirements of ASTM C920-02, Type S or M, Mamemco International, Pecora, Sika Corp., Sonneborn Building Products, Tremco or approved equal. Self leveling caulking materials are not allowed.

B. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

C. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

D. Sealant Backer Rod: Provide compressible polyethylene or polyurethane backer rod as recommended by the sealant manufacturer.

E. Bond Breaker Tape: Provide polyethylene tape or other plastic tape as recommended by sealant manufacturer, to be applied to sealant-contact surfaces where bond to substrate or joint filler must be avoided for proper performance of sealant.

F. Sand: Cover the surface of the caulking with #30 silica sand.

2.05 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 the advance review by the Owner's

Representative.

PART 3 EXECUTION

3.01 SURFACE CONDITIONS

A. Inspection:
1. Prior to all Work of this Section, carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation may properly commence.
2. Verify that all Work may be constructed in accordance with all applicable codes and regulations, the referenced standards, the original design, and in accordance with site specific Geotechnical Report.

B. Discrepancies:
1. In the event of discrepancy, immediately notify the Owner's Representative.
2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.
3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Contractor of existing conditions as fit and proper to receive work.

3.02 CONCRETE FORMWORK

A. Construction of Forms:
1. General: Construct all required forms to be substantial, sufficiently tight to prevent leakage of concrete paste, and able to withstand excessive deflection when filled with wet concrete.
2. Layout:
a. Form for all required cast-in-place concrete to the shapes, sizes, lines and dimensions indicated on the Drawings.
b. Exercise particular care in the layout of forms to avoid necessity for cutting concrete after placement.
c. Make proper provisions for all openings, offsets, recesses, anchorages, blocking and other features of the Work as shown or required.
d. Perform all forming required for Work of other trades and do all cutting and repairing of forms required to permit such installation.
e. Carefully examine the Drawings and Specifications and consult with other trades as required relative to providing for pipe and conduit penetrations, reglets, chases and other items in the forms.
3. Imbedded Items: Set all required steel frames, angles, bolts, inserts and other such items required to be anchored in the concrete prior to concrete being placed.
4. Bracings:
a. Properly brace and tie the forms together so as to maintain position and shape and to ensure safety to workmen.
b. Construct all bracing, supporting members and centering of ample size and strength to safely carry, without excessive deflection, all dead and live loads to which they may be subjected.
c. Properly space the forms apart and securely tie them together, using metal spreader ties that give positive tying and accurate spreading.
5. Wetting: Keep forms sufficiently wetted to prevent joints from opening up before

concrete is placed.

B. Plywood Forms:
1. Design: Nail the plywood panels directly to studs and apply in a manner to minimize the number of joints.
2. Joints: Make all panel joints tight butt joints with all edges true and square.

C. Footing Forms:
1. Wood Forms: All footing forms shall be wood unless otherwise specifically approved by the Owner's Representative, or as specified in paragraph 3.02(C)(2).
2. Earth Forms:
a. Side walls for footings may be of earth provided the soil will stand without caving and the sides of the bank are made with a neat cut to the minimum dimensions indicated on the Drawings.
b. For excavation and backfill of earth forms, conform with applicable provisions of Section 13 11 01.

D. Reuse of Forms:
1. Reuse of forms shall be subject to advance approval of the Owner's Representative.
2. Except as specifically approved in advance by the Owner's Representative, reuse of forms shall in no way delay or change the schedule for placement of concrete from the schedule obtainable if all forms were new.
3. Except as specifically approved in advance by the Owner's Representative, reuse of forms shall in no way impart less structural stability to the forms nor less acceptable appearance to finished concrete.

E. Removal of Forms:
1. General:
a. In general, side forms of footings may be removed seven (7) days after placement of concrete, but time may be extended if deemed necessary by the Owner's Representative.
b. Forms for footings, foundations, grade beams, slabs, walls, and other formed concrete may be removed fourteen (14) days after placement of concrete.
2. Removal:
a. Use all means necessary to protect workers, passersby, the installed Work of other trades and the complete safety of the structure.
b. Cut nails and tie wires or form ties off flush, and leave all surfaces smooth and clean.
c. Remove metal spreader ties on exposed concrete by removing or snapping off inside the wall surface and pointing up and rubbing the resulting pockets to match the surrounding areas.
d. Flush all holes resulting from the use of spreader ties and sleeve nuts using water, and then solidly pack throughout the wall thickness with cement grout applied under pressure by means of a grouting gun; grout shall be one part Portland Cement to 2-1/2 parts sand; apply grout immediately after removing forms.

3.03 CONCRETE REINFORCEMENT

A. Bending:
1. General:
a. Fabricate all reinforcement in strict accordance with the Drawings.

b. Do not use bars with kinks or bends not shown on the Drawings.
c. Do not bend or straighten steel in a manner that will injure the material. (When opposite end is already encased in concrete.)

2. Design:
a. Bend all bars cold.
b. Make bends for stirrups and ties around a pin having a diameter of not less than two (2) times the minimum thickness of the bar.
c. Make bends for other bars, including hooks, around a pin having a diameter of not less than six (6) times the minimum thickness of the bar.

B. Placing:
1. General: Before the start of concrete placement, accurately place all concrete reinforcement, positively securing and supporting by concrete blocks, metal chairs or spacers, or by metal hangers.
2. Clearance:
a. Preserve clear space between bars of not less than one and one-half (1-1/2) times the nominal diameter of the round bars.
b. In no case let the clear space be less than one and one-half (1-1/2) inches nor less than one and one-third (1-1/3) times the maximum size of the aggregate.
c. Provide the following minimum concrete covering of reinforcement:
1) Concrete deposited against earth: three (3) inches minimum.
2) Concrete below grade deposited against forms: two (2) inches minimum.
3) Concrete elsewhere: As indicated on Drawings or otherwise approved by the Owner's Representative.
3. Splicing:
a. Horizontal Bars:
1) Place bars in horizontal members with minimum lap at splices sufficient to develop the strength of the bars.
2) Bars may be wired together at laps except at points of support of the member, at which points preserve clear space described above.
3) Whenever possible, stagger the splices of adjacent bars.
4) Splice forty (40) bar diameters minimum.
5) Provide non-contact lap slices for shotcrete.
b. Wire Fabric: Make all splices in wire fabric at least one and one-half (1-1/2) meshes wide.
c. Other Splices: Make only those other splices that are indicated on the Drawings or specifically approved by the Owner's Representative.
4. Dowels: Place all required steel dowels and securely anchor them into position before concrete is placed.
5. Obstructions: In the event conduits, piping, inserts, sleeves and other items interfere with placing reinforcement as indicated on the Drawings or otherwise required, immediately consult with the Owner's Representative and obtain approval of a new procedure prior to placing concrete.

C. Cleaning Reinforcement: Steel reinforcement, at the time concrete is placed around it, shall be free from rust scale, loose mill scale, oil, paint and all other coatings which will destroy or reduce the bond between steel and concrete. Bend down all tie wire away from the top of the pool deck. Maintain a 2" clear from top of concrete to the tie wire.

3.04 SHOTCRETE REINFORCEMENT

A. Shotcrete reinforcement shall be in accordance with the requirements of CBC 1908A and ACI 318-19, along with the provisions of ACI 506R and ACI 506.2. For parallel nonprestressed reinforcement in shotcrete members, the clear spacing between bars shall be at least the greater of 6 bar diameters and 2-1/2 in. Where two curtains of reinforcement are provided, the clear spacing between bars in the curtain nearer the nozzle shall be at least 12 bar diameters; the clear spacing between bars in the remaining curtain shall be at least the greater of 6 bar diameters and 2-1/2 in. Adequate encasement of bars larger than No. 5 shall be demonstrated by a preconstruction test shotcrete mockup panel.

1. Subject to the approval of the building official, it shall be permitted to use a clear spacing that does not meet the clear spacing provisions listed above provided that shotcrete mockup panels are used to demonstrate the proper reinforcement encasement in accordance with the following:
   a. The shotcrete mockup panels shall be representative of the most complex reinforcement configurations to be encountered.
2. The licensed design professional shall specify the shotcrete mockup panel quantity, frequency of shooting per nozzleman and member type, and panel thickness to verify reinforcement encasement.

B. Non-contact lap splices for reinforcement in shotcrete shall have clear spacing in accordance with the following:

1. For No. 6 and smaller bars, the clear spacing between bars shall be at least greater of 6 bar diameters and 2-1/2" in.
2. For No. 7 and larger bars, the clear spacing shall be established using a shotcrete mockup panel to demonstrate that the reinforcement is properly encased.
3. Subject to the approval of the building official, contact lap splices for reinforcement in shotcrete shall be oriented with the plane of the spliced bars perpendicular to the surface of the shotcrete and approved by the licensed design professional based on a shotcrete mockup panel to demonstrate that the reinforcement is properly encased.

3.05 CAST-IN-PLACE CONCRETE

A. Conveying and Placing Concrete:

1. Before placing concrete, mixing and conveying equipment shall be well cleaned, and the forms and space to be occupied by concrete shall be thoroughly cleaned and wetted. Ground water shall be removed until the completion of the work.
2. No concrete shall be placed in any unit of work until all formwork has been completely constructed, all reinforcement has been secured in place, all items to be built into concrete are in place, and form ties at construction joints tightened.
3. Concrete shall be conveyed from mixer to place of final deposit in such a way to prevent the separation or loss of ingredients. It shall be placed as nearly as practicable in its' final position to avoid rehandling or flowing. Concrete shall not be dropped freely where reinforcing bars will cause segregation, nor shall it be dropped freely more than six (6) feet. Use tremies, spouts and dump boxes in deep sections. Vibrators are not acceptable for facilitating concrete transport.
4. Concrete shall be tamped and spaded to insure proper compaction into all parts of forms and around reinforcement. A mechanical vibrator shall be used to thoroughly compact the concrete. Vibration must be by direct action in the concrete and not against forms or reinforcement.
5. Mixing and transport time as indicated in ASTM C94 is required. If air temperatures are between 85° and 90° F the delivery time is to be reduced to 75 minutes. When air temperatures are in excess of 90° F the delivery time should be reduced to 60 minutes.

6. Truck mixes without batch certificates will be rejected.

B. Construction Joints / Expansion Joints: Construction joints and expansion joints shall be provided at locations and in the manner shown on the Drawings. With exception of existing concrete / new shotcrete joints, use PVC bulb-type waterstops appropriate for design condition between all concrete pours / lifts to avoid cold joints. Waterstops shall be placed in such a way to protect reinforcing steel from rust and oxidation. All expansion joints must be the full depth of the concrete section in which they are located.

C. Slab Finishes: Concrete slabs shall be compacted and screeded uniformly to grades shown. Push large aggregates below the surface with a screen tamper, screed and bull float. As soon as the surface becomes workable, it shall be wood floated, then finished as indicated on the Drawings to a uniform smooth, true surface in a neat and workmanlike manner. Carefully coordinate slab finish requirements with other trades (ceramic tile, pool plaster) to ensure concrete finish is appropriate substrate for final finish material.
1. Contractor shall provide three mock-up deck samples, minimum 3'x 3', with a wedge anchor installed in one sample. These (3) samples shall be constructed; one with a light broom finish, one (1) with a medium broom finish and one (1) with a heavy broom finish for determination and selection of an appropriate deck finish. Each sample shall be edged on all four sides to demonstrate a 3/4" radius edge. Anchor installation shall demonstrate acceptable interface between anchor and the top of deck. Deck samples shall remain on job site through final inspection for reference.
2. Pool Floor Slab: Heavy Wire Broom Finish.

D. Protection and Curing:
1. Concrete shall be protected from injurious action of the elements and defacement of any nature during construction.
2. All forms must be kept wet to prevent drying out of the concrete.
3. All concrete surfaces including footings must be kept wet for at least seven (7) days after concrete is placed.
4. Apply the appropriate curing materials, as specified in 2.03 of this Section, immediately after finishing slabs. Application shall be as specified by the manufacturer.

E. Form Removal:
1. Take care in removing forms so that surfaces are not marred or gouged and that corners are true, sharp and unbroken.
2. No steel spreaders, ties or other metal shall project from or be visible on any concrete surfaces.

F. Defective Work:
1. Should the strength of any concrete for any portion of the work indicated by tests of molded cylinders and core tests fall below minimum 28 days strength specified or indicated, concrete will be deemed defective work and shall be replaced.
2. Concrete work that is not formed as indicated, is not true to intended alignment, not plumb or level where so intended, not true to intended grades or elevations, not true to specified or selected finish, contains sawdust shavings, wood, or embedded debris, which exhibits cracks or contains fine or coarse sulfide particles, or expansive aggregates detrimental to performance or appearance of the concrete shall be deemed defective.
3. Promptly perform work required to replace and properly clean (by sandblasting if necessary) any defective concrete panels (control joint or expansion joint to control joint or expansion joint), at Contractor's expense, including all expense of additional inspection, tests,

or supervision made necessary as a result of defective concrete.

3.06 EXPANSION JOINTS

A. Temperatures: Do not install sealants when air temperature is less than 40°F.

B. Tooling: Tool exposed joints to a slightly concave surface using slicking materials recommended by the manufacturer. The tooling procedure shall press sealant against the sides of the joint. No materials shall be left "feathered" out or smeared on the abutting materials. Completed joints shall have a uniform professional appearance.

C. Joint Construction: Sealant joint width, thickness and cross-sectional profile to be constructed in strict accordance with the sealant manufacturer's recommendations.

D. Sand: At the appropriate time cover the sealant with sand to provide a sanded finish.

3.07 CLEAN-UP

A. Upon completion of the Work of this Section, immediately remove all swimming pool concrete materials, debris and rubbish occasioned by this Work to the approval of the Owner's Representative.

END OF SECTION

SECTION 13 11 04

SWIMMING POOL CERAMIC TILE

PART 1 – GENERAL

1.01 WORK INCLUDED

A. Swimming pool ceramic tile detailed on the Drawings, including, but not limited to, the following:
1. Waterline Face Tile. (Deep Gutter Pool)
2. Gutter Cap Tile. (Deep Gutter Pool)
3. Lane Line / Target Tile / 4'-6" Depth Tile
4. Depth Marker Tile. (At Cantilever Deck Face)
5. Depth / Caution Marker Tile. (On Pool Deck)
6. Trim Tile (at Steps.)

1.02 QUALITY ASSURANCE

A. Qualifications of Workers:
1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.
2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.

B. Standards: In addition to complying with all pertinent codes and regulations:
1. Manufacture of all tile shall be in accordance with ANSI A-137.1.
2. Install ceramic tile in accordance with the recommendations contained in the 2023 "Handbook for Ceramic Tile Installation" of the Tile Council of America, Inc.

C. Tolerances: Install all swimming pool ceramic tile straight, true, plumb and square within a tolerance horizontally of one in 200 and a tolerance vertically of one in 500. Waterline and gutter bullnose tile shall be level to 1/8" (+/- 1/16") around entire perimeter of swimming pools.

1.03 SUBMITTALS AND SUBSTITUTIONS

A. Provide submittals in conformance with the requirements of Section 01 33 00. Requests for substitution shall conform to requirements of Article 1.10 of Section 13 11 00.

B. Samples: Submit samples of each color and pattern in the specified groups. Character samples can be representative for review prior to screening of actual tile.

C. Master Grade Certificate: Prior to opening ceramic tile containers, submit a Master Grade Certificate, signed by the manufacturer of the tile used and issued when the shipment is made, stating the grade, kind of tile, identification marks for the tile containers, and the name and location of the Project.

D. Specifications: Submit manufacturer's recommended installation specifications for the Work.

E. Submit proof of qualifications as specified in Article 1.02.A of this Section.

1.04 PRODUCT HANDLING

A. Delivery: Deliver all materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.

B. Storage: Store all materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project site.

C. Protection: Use all means necessary to protect swimming pool ceramic tile before, during and after installation and to protect the installed Work specified in other Sections.

D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner's Representative.

PART 2 – PRODUCTS

2.01 TILE

A. Waterline Face Tile: (Deep Gutter Pool)
1. Material: All waterline face tile shall be glazed ceramic tile (Group III standard) as manufactured by Dal-Tile or approved equal.
2. Size: 6 x 6 inches.
3. Color: Dal-Tile #D-129, 'Sky Blue'. Contact Kylee Midura kylee.midura@daltile.com (858) 344-0019.

B. Gutter Cap Tile: (Deep Gutter Pool)
1. Material: All gutter cap tile shall be glazed ceramic tile (Group III standard) as manufactured by Dal-Tile or approved equal.
2. Size: 2-1/2 x 6 inches (#A-7250).
3. Color: Dal-Tile #D-129, 'Sky Blue'.

C. Lane Line / Target / 4' - 6" Depth Tile:
1. Material: Group 3 quality, frost proof unglazed ceramic mosaic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal.
2. Size: 1 x 1 inches.
3. Color: Dal-Tile #D-311, 'Black' in 25-yard direction, and Dal-Tile #D023 'Galaxy Blue' at 4'-6" depth.

D. Depth Marker Tile (At Cantilever Deck Face):
1. Material: All depth marker tile shall be glazed ceramic tile as manufactured and/or distributed by Dal-Tile, Precision Tile Co., or approved equal.
2. Size: 4-1/4 x 4-1/4 inches.
3. Color: Dal-Tile #X-114, 'Desert Gray' with Black silk screen numbers.

E. Depth / Caution Marker Tile (on pool deck):
1. Material: Group 3 quality, frost proof unglazed ceramic mosaic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal.
2. Size: 1 x 1 inches.

3. Color: Dal-Tile #D-311, 'Black' letters and numbers on #D-014, ' Light Gray' field.

F. Trim Tile (on underwater steps):
1. Material: Group 3 quality, frost proof unglazed ceramic mosaic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal.
2. Size: 1 x 1 inches with S-812 quarter round. Color: Dale-Tile #D-311. 'Black'.
3. Size 2 x 6 inches with integral quarter round. Color: Black, non-slip. Inlays #CPC00022.

2.02 MORTAR

A. Laticrete 3701 fortified mortar #LCR-37-1017.

B. Site mortar mix shall comply with ASTM C270 standards.
1. Sand for Mortar: Comply with requirements of fine aggregate for concrete.
2. Cement: Type 1 portland cement, conforming to ASTM C150.
3. Hydrated Lime: Conforming to ASTM C206 or 207, Type S.
4. Water: From a potable source.

C. Water: From a potable source.

D. Mortar shall meet ASTM C627

2.03 THIN SET MORTAR

A. Laticrete 254 Platinum. Laticrete, Custom or equal

B. Water from potable source.

C. Mortar shall meet ASTM C627

2.04 GROUT

A. All tile grout shall be waterproof grout complying with the recommendations of TCA and ANSI A118.6 (4) standards. Grout color shall be grey for dark backgrounds, white for light backgrounds (verify colors with Architect).

2.05 OTHER MATERIALS

A. All other materials, not specifically described but required for a complete and proper installation of ceramic tile as indicated on the Drawings, shall be new, first quality of their respective kinds, and subject to the approval of the Owner's Representative.

PART 3 – EXECUTION

3.01 SURFACE CONDITIONS

A. Inspection:
1. Prior to all Work of this Section, carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation may properly commence.
2. Verify that ceramic tile can be installed in accordance with the original design and all

referenced standards.

B. Discrepancies:
1. In the event of discrepancy, immediately notify the Owner's Representative.
2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.
3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Contractor of existing conditions as fit and proper to receive its Work.

3.02 INSTALLATION

A. Method:
1. Install all ceramic tile in strict accordance with installation method P601-90 of the 2023 Handbook for Ceramic Tile Installation of the Tile Council of America, Inc.
2. Be certain to install all ceramic tile perfectly level, flush, plumb, and to the finish grades and elevations indicated on the Drawings.

B. Interface:

1. Carefully establish and follow the required horizontal and vertical elevations to insure proper and adequate space for the work and materials of other trades.
2. Coordinate and cooperate as required with other trades to insure proper and adequate interface of ceramic tile Work with the Work of other trades.

3.03 GROUTING

A. Follow grout manufacturer's recommendations as to grouting procedures and precautions.

B. Remove all grout haze, observing grout manufacturer's recommendations as to use of acid and chemical cleaners.

3.04 EXTRA STOCK

A. Provide one (1) unopened box of extra tile for 2.01A, 2.01B, and 2.01C for Owners use at a future time.

3.05 CLEAN-UP

A. Upon completion of the swimming pool ceramic tile installation, thoroughly clean and polish the exposed surfaces of tile work. Completely clean work area of debris and rubbish occasioned by this Work and dispose of to the approval of the Owner's Representative.

END OF SECTION

SECTION 13 11 05

SWIMMING POOL PLASTER

PART 1 GENERAL

1.01 WORK INCLUDED

A. Swimming pool plaster and waterproofing of swimming pool structures as indicated on the Drawings and herein specified.

B. Start-up and operation instructions to Owner's operations and maintenance personnel and properly balance swimming pool water chemistry until the Owner takes occupancy.

1.02 QUALITY ASSURANCE

A. Qualifications of Workers:
1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.
2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.

B. Standards: Swimming pool plaster shall conform with requirements of Chapter 31B of California Building Code, 2022 edition. In addition, meet requirements of applicable portions of most current edition of the "Technical Manual," National Plasterers Council, Mission Viejo, California.

C. Start-up:
1. Furnish a swimming pool water chemistry consultant, with a minimum of five (5) years experience, possessing either AFO (Aquatic Facility Operator) or CPO (Certified Pool Operator) certification(s), to supervise and properly balance swimming pool water chemistry.
2. Demonstrate to the Owner that all systems are fully operational and that calcium hardness, total alkalinity, chlorine residual and pH levels are within specified limits.
3. Standards: Furnish labor and chemicals as required to condition the water properly to the following specifications:
   a. Calcium Hardness: 200-400 parts per million (PPM)
   b. Total Alkalinity: 80-100 PPM, minimum
   c. Chlorine Residual: 1 1.00 to 2.00 PPM
   d. pH Factor: 7.2 to 7.6

1.03 SUBMITTALS AND SUBSTITUTIONS

A. Provide submittals in conformance with the requirements of Section 01 33 00. Requests for substitution shall conform with requirements of Article 1.10 of Section 13 11 00.

B. Submit proof of qualifications as specified in Article 1.02 and 1.02.C.1 of this Section.

1.04 PRODUCT HANDLING

A. Delivery: Deliver materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.

B. Storage: Store materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project Site.

C. Protection: Use all means necessary to protect the swimming pool plaster before, during, and after installation and to protect the installed Work specified in other Sections.

D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner.

1.05 ENVIRONMENTAL CONDITIONS

A. No plastering shall be done under unsuitable conditions of weather or temperature. No plastering shall be done when prevailing temperature is 40 degrees Fahrenheit or less.

B. Do not install plaster during rain and, if rain commences after plastering has begun, immediately protect the plaster from rain by all means necessary until the plaster has set.

C. Do not install plaster during wind greater than 10 mph and, if wind commences after plastering has begun, immediately protect the plaster from wind by all means necessary until the plaster has set.

PART 2 PRODUCTS

2.01 CEMENT / AGGREGATE

A. Luna Quartz® tiny pebble finish by Wet Edge Technologies. Altima® quartz finish by Wet Edge Technologies. Pebble-Fina® pool finish by Pebble Technologies.

2.02 COLOR

A. All swimming pool plaster shall be white in color. Wet Edge Technologies shall be Luna Quartz® “Polar White”. Wet Edge Technologies shall be Altima® “White”. Pebble Technology shall be Pebble-Fina® “Classico”. Contractor to obtain written approval on selected pebble color from the local Health Department prior to installation. Submit cut sheet, color sample and written approval for review by Architect and Owner.”

2.03 WATER

A. Water for swimming pool plaster shall be clean and free from injurious amounts of acid, alkali, and organics.

2.04 GUTTER, PUMP PIT, BACKWASH PIT & SURGE CHAMBER WATERPROOFING

A. Xypex, Miracote Miraflex Membrane C, or approved equal. Mix and apply per manufacturer’s recommendations for specific application. Color shall be Gray.

PART 3 EXECUTION

3.01 SURFACE CONDITIONS

A. Inspection:
   1. Prior to Work of this Section, carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation can properly commence.
   2. Verify that swimming pool plaster can be installed in accordance with the original design and all referenced standards, including proprietary application techniques and application training/certifications.

B. Discrepancies:
   1. In the event of discrepancy, immediately notify the Owner's Representative.
   2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.
   3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Contractor of existing conditions as fit and proper to receive the Work.

3.02 INSTALLATION OF GUTTER, PUMP PIT, BACKWASH PIT & SURGE CHAMBER WATERPROOFING

A. Provide two (2) coats of the specified gutter and surge chamber waterproofing prior to plastering the swimming pool. Prepare surfaces to receive waterproofing and cure in conformance with manufacturer's recommendations. Provide steel trowel application method to ensure uniform smooth, dense surface finish.

3.03 INSTALLATION OF POOL PLASTER

A. Outdoor Pools or Spas:
   1. Completion of other work: DO NOT commence plastering of swimming pool(s) or spa(s) until the following conditions have been met:
      a. The Health Department and/or other governing agencies have approved the pool(s) and/or spas) for plaster.
      b. All concrete pool deck construction is complete and the pool decks have been thoroughly cleaned.
      c. All landscaping in areas adjacent to the pool(s) or spa(s) is complete and the landscape irrigation system is operable.
      d. All painting in the pool area is complete.
      e. All welding and grinding in locations adjacent to the pool area are complete.
      f. The backwash sewer connection is complete.
      g. Pool(s) and/or spa(s) area(s) perimeter fencing installation is complete.
      h. All trash and debris have been removed from areas adjacent to the pool(s) or spa(s), particularly those areas that are normally upwind from the pool(s) or spa(s).
      i. All dust raising construction and/or activities in areas adjacent to the pool(s) or spa(s) are complete or mitigated.
      j. The circulation pump(s) is/are operational.
      k. The mechanical system has been flushed sufficiently to remove all dirt and debris from the piping system.
      l. All necessary chemicals (Chorine, pH adjuster, Sodium Bicarbonate and Calcium Chloride or any other required chemicals) are on site and ready for use.
      m. Obtain written approval from the Owner and the Architect.

B. Indoor Pools or Spas:
   1. Completion of Other Work: DO NOT commence plastering of swimming pool(s) or spa(s) until the following conditions have been met:
      a. The Health Department has approved the pool(s) and/or spa(s) for plaster.
      b. All work above the pool(s) and/or spa(s) is complete.
      c. All painting in the pool area is complete.
      d. All welding and grinding in locations adjacent to the pool area are complete.
      e. The backwash sewer connection is complete.
      f. All concrete pool deck construction is complete and the pool decks have been thoroughly cleaned.
      g. The circulation pump(s) is/are operation.
      h. The mechanical system has been flushed sufficiently to remove all dirt and debris from the piping system.
      i. All necessary chemicals (Chlorine, Acid, Sodium Bicarbonate and Calcium Chloride) are on site and ready to use.
      j. Obtain written approval from the Owner and the Architect.

C. Contractor accepts all liability from damage done to the pool plaster if the pool(s) or spa(s) is (are) plaster before the completion of the above listed items or without the written approval of the Owner and the Architect.

D. POOL PLASTER AUTHORIZATION FORM:
   1. The pool(s) and or spa(s) at Stagg High School is/are hereby approved for the installation of the pool plaster. Pursuant to the requirements of specification section 13 11 05, paragraph 3.03.

Owner	Date
Architect / Project Manager	Date

E. Preparation:
   1. Do not apply plaster over dirt, rust, scale, grease, moisture, scuffed surfaces or conditions otherwise detrimental to the formation of a durable plaster finish.
   2. Consult with manufacturer on application to specific surfaces being treated. Follow manufacturer's recommendation for curing of cast-in-place concrete or shotcrete surfaces prior to application of plaster.
   3. Protect ceramic tile, decking, deck equipment, gratings, fittings and other items by suitable covering or masking.
   4. Mask or remove all hardware, hardware accessories, machined surfaces, plates, lighting fixtures and similar items in place not to receive pool plaster. Following completion of plaster for each space or area remove masking. Re-install all removed items utilizing workers skilled in the trades involved.

F. Application:
   1. Finish shall be applied to a uniform thickness of 3/8" to ½" over the entire surface. The walls shall be scratch-coated followed by a finish coat. Material applied to the floor after the walls have been applied shall be accelerated to assure uniform setting time throughout the pool

surface.

2. Float the plaster to a uniform plane and trowel to a smooth, dense, impervious surface using extreme care to avoid stains.
3. Take special care in finishing around pool fittings, making sure to mask off or plug openings so as not to fill such openings with excess plaster. Be certain to completely enclose pool fittings with plaster to insure a leak-proof seal around pipes, fittings, lights, anchors, etc.
4. Accurately interface with the finish planes of items installed by other trades.
5. Quartz and pebble plaster is to be applied by a licensed applicator as approved by the manufacturer, and in accordance with manufacturer's training.

3.04 CURING

A. Preparation: Anticipate the need for required equipment and have all such equipment immediately available for use upon completion of pool plastering.

B. Pool Filling:
1. After the plaster has sufficiently dried and before drying has proceeded to a damaging point, cure the plaster by gradually filling the pool with water, preventing all damage to finished plaster surfaces.
2. Flow the water continuously until the pool is filled.
3. When the weather is hot and/or water pressure is low, keep the pool walls damp while the pool is filling.
4. Coordinate with Contractor to ensure that the pool is continuously monitored while filling to prevent overfill.

3.05 EQUIPMENT ACTIVATION

A. All water chemistry and filtration mechanical equipment shall be operational upon filling of pool after plaster. Chemicals and other related support items as supplied by Contractor, shall be in supply at start-up.

B. For the first fourteen (14) calendar days after completion of the pool plaster, brush all plastered surfaces at least twice a day and coordinate with General Contractor to ensure that the plaster is carefully maintained after the initial fourteen-day period. In addition, coordinate with the Contractor to ensure that pool filtration equipment is continuously running during the initial fourteen-day period.

C. Start-up and provide qualified personnel to operate pool equipment for a period not less than fourteen (14) days after the pool is placed in operation, or until the Owner takes occupancy of the facility or letter of substantial completion. During this time, Contractor shall instruct and supervise the Owner's personnel in the various operating and maintenance techniques involved. Contractor shall be responsible for supply of chemicals during this not less than fourteen (14) day period and at time of turnover to Owner, chemical storage tanks shall be full. (Owner's personnel shall be fully trained and capable of assuming swimming pool maintenance tasks, training may begin before Owner takes occupancy).

3.06 CLEAN-UP

A. Upon completion of swimming pool plaster, remove all materials, equipment and debris occasioned by this Work and leave the job site in a clean and presentable condition. Perform all such clean-up to the approval of the Owner's Representative.

3.07 WARRANTY

A. All applicators must provide a minimum of five (5) year warranty for application and workmanship additional to the manufacturer's warranty for product.

END OF SECTION

SECTION 13 11 06

SWIMMING POOL EQUIPMENT

PART 1 GENERAL

1.01 WORK INCLUDED

A. Swimming pool equipment items required for this Work as indicated on the Drawings and specified herein.

1.02 QUALITY ASSURANCE

A. Qualifications of Workers:
   1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.
   2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
   3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.

B. All equipment supplied or work performed shall comply with regulations governing public swimming pools and spas as contained within Chapter 31 of California Building Code, 2022 edition.

1.03 SUBMITTALS AND SUBSTITUTIONS

A. Provide submittals in conformance with the requirements of Section 01 33 00.

B. Required submittals include:
   1. Swimming Pool Fittings as specified in Article 2.01 of this Section.

C. Submit proof of qualifications as specified in Article 1.02.A of this Section.

D. The equipment shown on the plans represent the first listed items in the technical specifications. The Contractor shall be responsible for all required field coordination and installation of any approved equal product to provide a fully working and warranted system. The Contractor shall submit detailed shop drawings for any products used other than the first listed specified items. Contractor provided shop drawings shall include details and quality equal to the original plans and construction documents. The Contractor shall provide any and all required engineering including but not limited to structural and anchorage requirements for any proposed equipment other than the first listed specified equipment. The Contractor is responsible to provide a factory certified representative(s) to start-up and provide on-site training for all swimming pool mechanical equipment provided.

1.04 PRODUCT HANDLING

A. Protection: Use all means necessary to protect swimming pool equipment items before, during and after installation and to protect the installed work specified in other Sections.

B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner's Representative.

PART 2 PRODUCTS

2.01 FITTINGS

A. Main Drain Frame & Grate (18" x 36"): 'Daldorado' DALMAX-SG-183625, with VGB Compliant Grates, or approved equal, two (2) required. Provide two (2) Hayward #SP-1056 1- 1/2" collector tubes and two (2) #SP-1055 Hayward 1-1/2" hydrostatic relief valve, one per main drain sump. Contractor shall provide to the Owner a Certificate of Compliance, signed by a licensed design professional, for main drain sump(s) and frame(s) and grate(s), as required by the Virginia Graeme Baker Act.

B. Floor Return Inlet Covers 1-1/2" Adjustable: StaRite #08417-0000, United Industries, or approved equal. Forty-five (45) total. Replace all cover plates.

C. Swimming Pool Underwater Lights: Replace existing lights with 'Pure White LED' #LPL-F5W-120-100 (100' cord, field verify required length) with polished stainless steel face rings, 87-watt lamps and LWC (J&J Electronics). Thirty-two (32) total. Utilize existing stainless-steel niches, Pentair #78210600 with 1" hubs and existing conduits to existing junction boxes.

2.02 WATER CHEMISTRY CONTROL COMPONENTS

A. Provide new BecSys 7 flow switch and sensor probe unit to connect to existing BecSys 7 controller. Contractor shall wire all appropriate relays and sensors to existing main unit.

2.03 CO2 DETECTOR

A. Provide Analox AP1 KIT with sensors and strobe. One (1) total. To be mounted per manufacturer's recommendations. Contractor shall note CO2 is heavier than air and sensor should be mounted accordingly.

2.04 FILTER MEDIA

A. AFMng® Activated Filter Media
   1. The filter media shall consist of three material grades and conform to the following min/max sizes:
      a. Grade #1 – 0.4mm to 0.8mm
      b. Grade #2 – 0.7mm to 2.0mm
      c. Grade #3 – 2.0mm to 4.0mm

   2. Filter media shall be manufactured of recycled green and brown glass only. Media manufactured from clear glass will not be accepted.
      a. Filter media shall be manufactured utilizing a **3**-step process that chemically and thermally activates its surface area.
      b. Filter media shall have hydrophobic surface properties.
         1.) Non-activated and non-hydrophobic media will not be accepted.
      c. The filter media shall be self-sterilizing and bio resistant.

d. The media shall have been tested under strict ISO procedures and its performance independently verified and confirmed.
e. The media shall be manufactured to meet the following criteria:
1.) Undersized < 10%
2.) Oversized < 10%
3.) Uniformity coefficient between 1.4 – 1.8
4.) Organic contamination < 1.7oz / ton
5.) Colored (green/brown) glass: > 98%
6.) Each filter tank shall be provided with the media sizes and quantities as per the manufacturer's recommendations.

1. Qualifications: The media described herein shall be a product of a manufacturer regularly engaged in the fabrication of activated recycled green glass media for at least fifteen years.
2. Certification: Media shall be certified to NSF 50 and 61 for use in sand type filters.
3. Warranty: The media supplier shall guarantee that the media being furnished is of the correct capacity, that is the installation is made in accordance with the drawings and operated in accordance with manufacturer's instructions, the system will perform to the prescribed functions correctly, the water entering the pool will be clear, free from suspended matter visible to the unaided eye, will not produce any toxic effect or impart undesirable taste, odors or colors, and will be sanitary to the satisfaction of all authorities having jurisdiction.
4. Startup: An authorized representative of the media supplier shall provide the supervisory services to fully instruct designated personnel in the operation, care, and maintenance of the filter media.

2.05 SWIMMING POOL HEATERS

A. 'Raypak' #p1532B cold run hi delta, 1,530,000 BTU input, 2" gas connection, 2 ½" water influent/effluent connections and 12" ø flue to atmosphere. Two (2) total. Piped in tandem per manufacturer's recommendations. (1,335 lbs. each) Refer to mechanical plans for heater flue detail. Contractor shall utilize existing housekeep pad and anchoring system. Detail provided if modifications are required. Contractor shall utilize all existing piping, flues, and valving for new heaters. Replace in kind if damaged or non-functioning.

PART 3 EXECUTION

3.01 SURFACE CONDITIONS

A. Inspection:
1. Prior to installing the items of this Section, carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation may properly commence.
2. Verify that the swimming pool equipment items may be installed in strict accordance with original design, pertinent codes and regulations, and the manufacturers' recommendations.

B. Discrepancies:
1. In the event of discrepancy, immediately notify the Owner's Representative's Representative.
2. Do not proceed with installation in areas of discrepancy until all such discrepancies are fully

resolved.

3. Failure to notify the Owner's Representative's Representative and give written notice of discrepancies shall constitute acceptance by the Installer of existing conditions as fit and proper to receive its Work.

3.02 INSTALLATION

A. Supply and install items of swimming pool equipment in strict accordance with applicable codes and regulations, the original design, and the manufacturer's published recommendations, anchoring firmly and securely for long life under hard use.

B. Coordinate with other trades to insure all imbedded items are set plumb and flush. Railing ends must have anchor sockets and escutcheon plates. Be certain that deck equipment and railings are properly bonded prior to imbedding.

C. All equipment shall be braced and/or anchored to resist a horizontal force acting in any direction using the criteria shown on the Drawings.

3.03 INSTRUCTION

A. The Contractor shall provide a factory certified representative(s) to start-up and certify proper installation, operation and full warranty status of all swimming pool mechanical equipment. The Contractor shall provide not less than two 8-hour days of on-site training for facility staff in the operation and maintenance of the swimming pool mechanical equipment and systems. The two 8-hour days shall be separated by a minimum of seven calendar days and be completed within the 14-day start-up period.

3.04 EQUIPMENT ACTIVATION

A. All water chemistry and filtration mechanical equipment shall be operational upon filling of pool after plaster. Chemicals and other related support items as supplied by Contractor, shall be in supply at start-up.

B. For the first seven (7) calendar days after completion of the pool plaster, brush all plastered surfaces at least twice a day and coordinate with General Contractor to ensure that the plaster is carefully maintained after the initial seven (7) period. In addition, coordinate with the Contractor to ensure that pool filtration equipment is continuously running during the initial seven-day period.

C. Start-up and provide qualified personnel to operate pool equipment for a period not less than fourteen (14) days after the pool is placed in operation, or until the Owner takes occupancy of the facility or letter of substantial completion. During this time, Contractor shall instruct and supervise the Owner's personnel in the various operating and maintenance techniques involved. Contractor shall be responsible for supply of chemicals during this not less than fourteen (14) day period and at time of turnover to Owner, chemical storage tanks shall be full. (Owner's personnel shall be fully trained and capable of assuming swimming pool maintenance tasks, training may begin before Owner takes occupancy).

3.05 CLEAN-UP

A. Upon completion of swimming pool equipment, remove all debris, materials and equipment occasioned by this Work to the approval of the Owner's Representative's Representative.

END OF SECTION

SECTION 13 11 08

SWIMMING POOL ELECTRICAL

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide labor, materials and equipment as required to install the swimming pool electrical system including but not limited to:
   1. A complete and operable system of service equipment, switchboards, panelboards, conduits, switches, time clocks and wiring for power and lighting, motor control centers.
   2. Junction and/or pull boxes, conduits, disconnects, starters, contactors, wiring and connection of all motors and mechanical equipment, including connection and wiring of line voltage controls associated with the mechanical systems.
   3. Swimming pool underwater lighting systems.
   4. Complete grounding system as required and shown on the Drawings.
   5. Complete equipotential bonding system as required and shown on the Drawings.
   6. Adjusting and preliminary operation of the completed electrical system as described in Article 3.06, A of this Section.
   7. Cleaning of all completed Work and installation adjustment of all trim and decorative items.

1.02 QUALITY ASSURANCE

A. Qualifications of Workers:
   1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.
   2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
   3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.

B. Ordinances and Codes: Materials and construction shall conform with all applicable code requirements, including:
   1. National Electrical Code; Electrical Safety Orders of the State of California; Department of Industrial Relations; regulations of the State Fire Marshal; rules and regulations of the Board of Underwriters of the Pacific, UL 50, 50E and NEMA 250 rating.
   2. Chapter 31 of California Building Code, 2022 edition.

C. Verification of Conditions:
   1. The locations shown on the Drawings are diagrammatic only and the exact finish location of equipment and materials cannot be indicated. Therefore, locations of all Work and equipment shall be verified to avoid interferences, preserve head room and keep openings and passageways clear. Changes shall be made in locations of equipment and materials which may be necessary to accomplish these purposes.

D. Preliminary Operations and Testing:
   1. Motor driven equipment shall be tested for correct rotation and completion of all connec

tions.

1.03 SUBMITTALS AND SUBSTITUTIONS

A. Provide submittals in conformance with the requirements of Section 01 33 00. Requests for substitutions shall conform with requirements of Article 1.10 of Section 13 11 00.

B. Required submittals include:
1. Conduit and Fittings as specified in Article 2.02 of this Section.
2. Panelboards as specified in Article 2.08 of this Section.
3. Circuit Breakers as specified in Article 2.09 of this Section.
4. Motor Starters as specified in Article 2.12 and 2.13 of this Section.
5. Fuses as specified in Article 2.15 of this Section.
6. Time Clocks as specified in Article 2.16 of this Section.
7. Ground Fault Circuit Interrupters as specified in Article 2.17 of this Section.
8. NEMA Type 4x corrosion resistant UL 50, 50E & NEMA 250 rating for enclosures, cabinets and boxes as specified in Article 2.11 & 2.18 of this Section.

C. Submit proof of qualifications as specified in Article 1.02.A of this Section.

1.04 PRODUCT HANDLING

A. Delivery: Deliver all materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.

B. Storage: Store all materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project site.

C. Protection: Use all means necessary to protect swimming pool electrical materials before, during, and after installation and to protect the installed Work specified in other Sections.

PART 2 PRODUCTS

2.01 MATERIALS, GENERAL

A. Materials shall be new, in unbroken packages and bear the U.L. label of approval.

B. Equipment of one type shall be by same manufacturer. One type of equipment for classifications such as:
1. Switchboards, panels, buss duct, disconnect switches and allied items.
2. Conduit.
3. Wire.
4. Conduit fittings.
5. Fixtures of the same general type.
6. Wiring devices.

2.02 CONDUIT AND FITTINGS

A. Conduit within or under buildings or where exposed outdoors shall be rigid metal threaded, hot dipped, galvanized, or U.L. approved plastic except where noted otherwise on the Drawings. Metallic conduit shall be of the same metal between outlets or terminals.

B. Use flexible metallic conduit only for short connections of motors and where specifically called for on Drawings. Maximum length shall be 40". Use only liquid tight flexible metal conduit. Install an unbroken #12 AWG insulated copper grounding conductor in each liquid tight flexible conduit with permanent connection at motor junction box and service panel ground.

C. Protect, before installation, metallic conduit runs in all slabs laid on grade or in contact with the earth or exposed in damp locations, with two (2) heavy coats of asphaltum rust-resisting compound.

D. Encase conduits 2-1/2" or larger run underground, outside, or under buildings, in concrete envelopes a minimum of 3" thick, except as indicated otherwise on Drawings or stubouts. Conduits 2 and smaller laid 18" below finish surface in soil.

E. Low voltage runs underground outside buildings, 1-1/4" or smaller, may be G.I. or sherardized steel conduit, with machine applied wrapping equal to double wrap or Scotch-Wrap #50 tape, half lapped and quadrupled at joints in lieu of concrete encasement.

F. Service conduits through foundations or concrete members shall run through metal sleeves with adequate clearances for full movement of the conduit. Do not run conduits through footings.

G. Secure conduits run exposed on surfaces with one hole heavy-duty straps or fasten with matching fittings to inserts or trapezes, parallel to building walls and ceilings.

H. Cap all conduit or duct stub-outs with standard factory caps; except cap threaded steel conduit with B.I. water pipe caps in outdoor locations.

I. Use conduit fittings as manufactured by Crouse-Hinds Company, Appleton Electric Co., or approved equal.

J. Employ U.L. liquid tight fittings for use with liquid tight flexible metal conduit.

K. Use unions as manufactured by Appleton, O-Z/Gedney, or approved equal. The use of running threads will not be permitted.

L. Exposed conduit and fittings in chemical rooms shall be nonmetallic rigid polyvinyl chloride, corrosion resistant rated suitable for installation in corrosive environments and in accordance with the latest NEC requirements.

2.03 EQUIPOTENTIAL BONDING / GROUNDING

A. Bond together and ground to a common ground at a single point all metallic conduit, piping systems, pool reinforcing steel, metal parts of ladders, lifeguard stands, handrails and their supports and the like. The solid copper bonding conductor shall not be smaller than #8 copper.

2.04 WIRING CONNECTIONS

A. Make connections without strain on conductors, allowing the conductors to take a natural position after connections or taps are made. Include all strand of wire in making the connection.

B. Make connections for wiring by one of the following means:

1. Make all taps or connections to conductors with compression type connectors except those smaller than #8 B&S gauge may have soldered connections. Solderless connections for #10 AWG or smaller may be used and shall be "Scotchlok", Buchanan, or approved equal. For #8 AWG or larger, they shall be T&B "LockTite", Burndy "Versitaps", or approved equal.
2. All cable or conductor terminal lugs shall be Burndy "Quicklug", Ilsco, or approved equal. Two-piece stamped lugs and solder lugs will not be approved.
3. Paint taped splices in damp or outdoor locations with two (2) coats of insulating paint.
4. Tag all branch circuit wires with circuit number at the panelboard and at each point of use with linen or plastic tags.

2.05 CONDUCTORS

A. Copper RHW or THW. Do not make splices between boxes.

2.06 COLOR CODING

A. Neutrals (identified conductors shall be white).

B. Phase conductors shall be red for phase B; blue for phase C.

C. Green shall be used for mechanical equipment and receptacle grounds only.

2.07 MOTOR WIRING

A. Make final connections to motors with the required AWG (Minimum #12), Flamenol machine tool wire, 19 strand. Control wiring for equipment shall be Flamenol machine tool wire, 19 strand of required AWG. Provide corrosion resistant junction boxes at each item of equipment to change from standard building wiring to machine tool wire.

B. Phase motors as proper in direction of rotation.

2.08 PANELBOARDS

A. Panelboards shall be flush or surface mounting as indicated with circuit breakers as shown on panel schedule, hinged lockable doors, index card holders and proper bussing.

B. Where indicated on the drawings, panelboards shall be furnished with subfeed breakers and/or lugs, split bussing, contractors, time switches, relays, etc., as required.

C. All panelboards shall be keyed alike.

D. All panelboard enclosures shall be corrosion resistant rated in accordance with the latest NEC requirements.

E. Furnish corrosion resistant panelboard enclosures and terminal cabinets with Yale 46515 flush locks and LL806 keys except where indicated otherwise herein. Fasten the trim to panel boards and terminal cabinet by means of concealed, bolted or screwed fasteners accessible only when the door is open.

F. Panelboards 208/120 volt, three phase, 4 wire, S/N or 120/240 volt, single phase, 3 wire, S/N.

Panelboard types as manufactured by:

Westinghouse	Type B10B
General Electric	Type NLAB
Square D	Type NQOB

G. Panelboards for 480/277 volt, three panes, 4 wire, S/N.

Panelboard types as manufactured by:

Westinghouse	Type Pow-R-Line 2
General Electric	Type AE
Square D	Type NEHB
Sylvania	Type NH1B
I.T.E.	Type Approved Equal

H. Panelboard for bussing sizes thru 400 amp shall be 20" wide surface mounted type. Recess mounted type shall have a 20" wide (maximum) recess metal enclosure with trim plate cover extending 1" on all sides of enclosure. Depth shall be 5-3/4" nominal. Height of panel as required for devices.

I. Provide 6" additional gutter space in all panels where double lugs are required, or where cable size exceeds bus size. Minimum bottom gutter space shall be 6" high. 12" additional gutter space may be required for aluminum feeders where used.

J. Panelboards shown on the drawings with relays, time clocks or other control devices shall have a separate metal barriered compartment mounted above panel with separate hinged locking door to match panelboard. Provide mounting sub-base in cabinet for control devices and wiring terminal strips.

K. Panelboard shall have a circuit index card holder removable type, with clear plastic cover. Index card shall have numbers imprinted to match circuit breaker numbers.

2.09 CIRCUIT BREAKERS

A. Breakers shall have a minimum short circuit interrupting rating of 10,000A symmetrical for panelboard voltage thru 240 volt and 14000A for panelboards thru 600 volts or as specified on the drawings. In no case shall the interrupting rating be less than the bus withstand rating unless noted otherwise on the drawings.

B. Circuit breakers as manufactured by the following companies only are acceptable:
1. General Electric Company
2. Square D Company
3. Westinghouse Company
4. I.T.E. Company

C. Circuit breakers shall be arranged in the panels so that the breakers of the proper trip settings and numbers correspond to the numbering in the panel schedules on the drawings. Circuit numbers of breakers shall be black-on-white micarta tabs or other previously approved method. Circuit number tabs which can readily be changed from front of panel will not be accepted. Circuit number tabs shall not be attached to or be a part of the breaker.

D. Where two or three pole breakers occur in the panels, they shall be common trip units. Single pole breakers with tie-bar between handles will not be accepted.

E. All circuit breakers shall be padlockable in the "off" position. Locking facilities shall be riveted or mechanically attached to the circuit breaker (submit sample for approval). Other means of attachment

shall not be accepted without prior written approval of Architect.

F. Where branch circuit breakers supply the power to motors and signal systems, the breakers shall be furnished with lockout clips, mounted in the "on" position. The breakers shall be able to trip automatically with lockout clips in place.

G. Panelboard circuit breakers shall be bolt-on type.

2.10 BUSSING

A. Bussing shall be rectangular cross section copper, or full length silver or tin-plated aluminum.

B. Bussing shall be braces to withstand symmetrical short circuit ratings as follows or as noted on drawings. In no case shall bus short circuit bracing be less than specified circuit breakers.

C. Each panelboard shall be equipped with a ground bus secured to the interior of the enclosure. The bus shall have a separate lug for each ground conductor. No more than one conductor shall be installed per lug.

2.11 POOL MECHANICAL EQUIPMENT ENCLOSURES, TERMINAL CABINETS & MISC CABINETS

A. All pool mechanical equipment enclosures, terminal cabinets and miscellaneous cabinets in the pool mechanical room or chemical storage rooms shall be corrosion resistant rated in accordance with the latest NEC requirements. Enclosures and all cabinets shall be flush mounted (except where noted a surface) of the size indicated on the drawings, and complete with hinged lockable doors and the number of 2-way screw terminals required for termination of all conductors. Terminal cabinet locks to operated form same key used for panelboards. The trim to terminal cabinets shall be fastened by means of concealed bolted or screwed fasteners accessible behind door to terminal cabinets. Terminal cabinets shall have 5/8" plywood backing.

B. Provide engraved nameplate on each enclosure and cabinet indicating its designation and system (i.e., Swimming Pool - Panel ‘SP’).

2.12 MOTOR CONTROL INDIVIDUAL STARTERS

A. Manual Motor Starters:
1. Provide flush or surface mounting manual motor starters with number of poles and size of thermal overload heaters as required for the motor being controlled (equipped with overload heaters, one for each motor lead). Back boxes shall be supplied with all flush mounting starters whether they are toggle type requiring only a 4" square outlet box or the larger type requiring a special box and cover designed to accept the particular unit. All box types shall be corrosion resistant rated in accordance with the latest NEC requirements.
2. Unless otherwise noted on the drawings, all manual starters for single phase motors, smaller than 1 h.p., shall be the compact toggle type. Manual starters for all single phase motors, 1 to 5 h.p., and all three phase motors up to 5 h.p. shall be the heavy duty type.
3. Where manual motor starter is shown with pilot light, the pilot light shall be installed in a separate outlet box adjacent to the starter outlet, and engraved nameplate in indicate function of pilot light.
4. The following motor starters as manufactured by:

Manufacturer	Single Phase 1HP and Below	Others
Arrow Hart	Type RL	Type LL
General Electric	CR 101	Class CR 1062
I.T.E.	Class C10, C11 or C12	Class C20
Square D Company	Class 2510, Type A	Class 2510, Type B & C
Westinghouse	Type MS	Type A100
Allen Bradley	Approved Equal	Approved Equal.

B. Individual Magnetic Motor Starters:

1. Magnetic motor starters shall be A.C. line voltage, across-the-line units in a corrosion resistant rated enclosure in accordance with the latest NEC requirements.
2. All starters located outside of a building whether or not indicated shall be W.P. (weatherproof), and all starters noted W.P. shall be furnished in a corrosion resistant rated stainless steel enclosure in accordance with the latest NEC requirements.
3. Starter shall be horsepower rated for the motor controlled, and shall be equipped with properly sized overload elements. Every pole shall be with overload element.
4. Verify the exact motor current and voltage characteristics with the Contractor supplying the motor before installation of a starter.
5. Each starter shall be equipped with "Hand-Off-Auto" switch or stop-start pushbutton as required.
6. Coils shall be designed to operate on voltage indicated on control diagrams and have built-in-under the voltage release for coil circuit to drop motor starter off the line when the line voltage drops below normal operating voltage.
7. The coil control circuit shall be independently fused, sized to protect coil.
8. Starters to be equipped with running pilot light indication with a "Push-to-Test" feature.
9. Magnetic starters shall have a minimum of two auxiliary contacts. Additional auxiliary contacts shall be provided as required to comply with the requirements of the wiring diagrams on the electrical and mechanical drawings and the description of the function in the Mechanical Section of the Specifications.
10. Starters shall comply with NEMA standards, size and horsepower ratings as indicated on drawings.
11. The following types of magnetic motor starters as manufactured by:

Manufacturer	Type
General Electric	Class CR 106
I.T.E.	Class A20
Square D Company	Class 8536
Westinghouse	Type A200 (Size 4 Max.) or Class II-200 (Sizes 5-8)

2.13 INDIVIDUAL COMBINATION MOTOR STARTERS

A. Combination starter shall incorporate fused disconnect switch and individual magnetic motor starter in a common enclosure. Combination starters shall be mounted in corrosion resistant rated enclosure in accordance with latest NEC requirements.

B. Starters shall comply with NEMA standards, size and horsepower as indicated on drawings General Electric, Square D, Westinghouse or I.T.E.

C. The disconnect handle used on combination starters shall control the disconnect device with the door opened or closed. The disconnect handle shall be clearly marked as to whether the disconnect device is

"ON" or "OFF", and shall include a two-color handle grip, the black side visible in the "OFF" position indicating a safe condition, and the red side visible in the "ON" position indicating an unsafe or danger condition.

D. All starters used in combination starters shall be manufactured in accordance with the latest published NEMA standards, sizes, and horsepower ratings. These starters shall be furnished with three melting alloy type thermal overload relays.

E. Thermal units shall be of one-piece construction and interchangeable. The starter shall be inoperative if a thermal unit is removed.

2.14 MOTOR CONTROL CENTER INTERLOCKS AND CONTROL DEVICES

A. Refer to mechanical and plumbing drawings and specifications and provide all control devices including timeswitches, relays and interconnection of starters of required.

B. Mount all relays and timeswitches in a separate compartment in motor control center unless otherwise indicated.

C. Whether shown on mechanical and plumbing drawings or control center schedules or not, where motors are controlled by external devices (i.e., thermostats, relays, float or pressure switches, etc.) or interlocked with other motors, each motor starter to be equipped with a "Hand-Off-Auto" selector switch in starter cover. Other starters equipped with a "Start'Stop" pushbutton station in starter cover. The Contractor shall be responsible to submit a complete and detailed set of shop drawings, electrical schematic design along with electrical component cut sheets from the MCC panel or the interlock control device manufacturer. RSD Total Control: Allan Pearson 949-380-7878, South Coast Controls: Anthony Ellis 714-998-5656, H2O Integration Controls, Mike Macri, 253-244-1576 or approved equal.

2.15 FUSES

A. Fuses shall be dual element, current limiting type, U.L. Class RK5 unless otherwise indicated on the drawings. Provide one spare set of fuses of each size and type in each motor control center.

2.16 TIME CLOCKS

A. Time clocks shall be provided for all underwater lighting systems and swimming pool circulation pumps not controlled by filter microprocessors.

B. Contacts shall have a minimum rating of 40 amperes at 277V.

C. Timing motor shall be heavy duty synchronous, self starting, high torque type, and shall be rated at 120, 208, 240, 277 volt 60 Hz.

D. Motor shall operate normally at temperature range of -60 degrees Fahrenheit to +120 degrees Fahrenheit.

E. Dial shall be 3" diameter, clearly calibrated with day/night zones and 24 hour rotation, with gear to provide one revolution yearly which automatically varies the on/off settings each day according to seasonal changes. Day and month of the year shall show clearly through calendar window on the dial.

F. Time clocks shall be equipped with 7-spoke omitting wheel marked with days of the week.

G. Time clocks shall be housed in a corrosion resistant rated enclosure in accordance with the latest NEC requirements.

H. Acceptable manufacturers are Intermatic, Tork, Paragon, or approved equal.

2.17 GROUND FAULT CIRCUIT INTERRUPTERS

A. Minimum rating shall be 20 amperes, 125V, 5 milliampere trip setting, Class A per UL943.

B. Manufacturer to be Crouse-Hinds, Leviton, or approved equal.

2.18 BOXES

A. Boxes shall be of the size required by ordinances or larger, must be corrosion resistant in accordance with the latest NEC requirements where concealed or exposed on ceilings or walls.

B. Outlets to be surface where wiring is exposed and flush in areas where conduit is concealed.

C. Provide surface outlets with proper corrosion resistant surface covers. Box and cover shall be deep enough to provide at least 1/4" clearance between back of device and back of box. Where box contains more than one device, use a corrosion resistant rated gang box with proper cover in accordance with the latest NEC requirements. Surface outlet boxes shall be of the threaded hub type wherever below 8'0".

D. If necessary for cable installation, additional pull boxes or junction boxes may be installed in accessible locations. Exposed pull boxes and junction boxes shall be corrosion resistant rated in accordance with the latest NEC requirements.

E. Where exposed to weather pull boxes larger than outlet boxes are required, galvanized code gauge sheet steel boxes may be used with covers attached by brass machine screws may be used. Boxes exposed to the weather shall be approved for the purpose, and conduit entrances shall be on the bottom made by means of an interchangeable hub with gasket and adapter nut. Pull boxes not shown on Drawings may be added only after approval of size and location is obtained.

F. For outlets exposed to weather or where noted, cast outlet boxes shall be Crouse-Hinds, Appleton, or approved equal. Boxes shall have proper number and size hubs. Device plates, covers, adapters and boxes shall be as manufactured by Crouse-Hinds, Appleton, or approved equal.

G. Exposed junction boxes, outlet boxes and pull boxes for pool chemical rooms shall be non -metallic suitable for a corrosive environment and in accordance with the latest NEC requirements

2.19 IDENTIFICATION MARKINGS

A. Plainly mark all motor and electrical appliance control equipment indicating the equipment controlled with engraved metal tags.

B. Provide laminated plastic nameplates on panelboards on the outside of the door at the top indicating panel designation and feeder source.

C. Provide laminated plastic nameplates on distribution switchboards and motor control centers at the top center indicating panel designation and feeder source.

D. Identify each distribution switchboard and motor control center circuit breaker with a laminated plastic nameplate indicating its' use.

E. Type panelboard directories on the forms provided with the equipment, indicating the use of each branch circuit breaker.

F. Fasten all laminated plastic nameplates to surfaces with two (2) or more screws.

PART 3 EXECUTION

3.01 INSPECTION

A. Verify conditions at the Project site before submitting bid. Be responsible for providing all necessary wiring for the new electrical systems. Wherever wiring is being disrupted due to remodeling or changes, reconnect existing and provide new wiring circuits to accomplish a fully operable system at no additional cost to the Owner.

3.02 COORDINATION

A. The Drawings are essentially diagrammatic and indicate the desired location, size, routes, connection points, etc., and are to followed as closely as possible. Proper judgment must be exercised in executing the Work so as to provide the best possible installation in the available space and to overcome difficulties, limitations or interference wherever encountered. Be responsible for the correct placement of this Work, the proper location and connection in relation to Work of other trades, for determining the exact location of all conduits, outlets and equipment, and for installing the conduits in such a manner as to conform to the structure, avoid obstruction, preserve headroom and keep openings and passageways clear. Particular attention is directed to the close coordination required on exposed Work. Locations shown on Architectural or Mechanical Drawings if different than those shown on Electrical Drawings should be communicated to the Owner's Representative in writing for clarification.

3.03 INSTALLATION

A. Trenching and Backfill: Conform with requirements of Section 13 11 01. Provide minimum cover as required by Code.

B. Conduit Installation:
1. Conduit and metallic raceway systems shall be mechanically and electrically continuous from sources of current to all outlets in a manner to provide a continuous grounding path. Close ends of conduit during construction to prevent entrance of dirt or moisture.
2. Securely fasten conduit to the building construction within three feet of each outlet and within every ten feet thereafter. Secure it to boxes, cabinets, pull boxes, terminals with two locknuts and ends equipped with bushings or a terminal fitting. Cut square with ends carefully reamed.
3. Make bends or elbows so that the conduit will not be injured or flattened.
4. Use insulated metallic bushings in all places where bushings are required.
5. Run exposed conduits level or plumb and parallel to the construction members of the building. No cutting across or diagonal runs will be permitted. Neatly surmount structural

obstructions encountered on conduit runs by the use of fittings or pull boxes.

6. Identify feeder conduits by stamped metal tags secured to exposed section of conduit in main or sub-panels.
7. Make up all threaded conduit joints gas and watertight with conductive sealer except conduit above ground in dry indoor locations.
8. Rigidly support all boxes independently of the conduit system.

C. Connections to Equipment:

1. Fully connect, in an approved manner, all electrical outlets, apparatus, motors, equipment, fixtures, wiring devices and appliances whether they are installed under the Electrical Contract or not, which require electrical connections, to the corresponding electrical system outlet.
2. Where the Work of this Section requires connections to be made to equipment that is furnished and set-in-place under other Sections, obtain such roughing-in dimensions from the manufacturer or supplier of each item as required and assume full responsibility for the installation of the connections thereto.

3.04 ADJUSTMENT AND CLEAN-UP

A. Preliminary Operation: Should the Owner's Representative deem it necessary to operate the electrical installation or any part thereof prior to Substantial Completion of the Work, consent to such preliminary operation and supervise conduction of same. Subcontractor shall pay all costs occasioned by such operation. Preliminary operation shall not be construed as an acceptance of any Work installed under this Contract.

B. Clean-up: Upon completion of the Work of this Section, immediately remove all swimming pool electrical materials, debris and rubbish occasioned by this Work to the approval of the Owner's Representative.

END OF SECTION

SECTION 31 20 00

EARTH MOVING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Site excavation and backfilling as shown on the Drawings including, but is not necessarily limited to, the following:
   1. Topsoil stripping, stockpiling, and replacement into planting areas.
   2. Rough grading.
   3. Filling and backfilling to attain required grades.
   4. Excavating for paving, footings, and foundations.

B. Related Requirements:
   1. Section 01 33 00 - Submittal Procedures
   2. Section 01 71 23 - Field Engineering
   3. Section 01 78 39 - Project Record Drawings
   4. Section 02 41 13 - Site Clearing and Demolition
   5. Section 31 23 00 - Excavation and Fill
   6. Section 32 11 00 - Base Courses

1.02 REFERENCES

A. California Building Code (CBC).

B. American Society for Testing and Materials (ASTM):
   1. D 1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.

C. California Occupational Safety and Health Standards (OSHA):
   1. Article 6 - Excavations and Shoring.

D. State of California, Business and Transportation Agency, Department of Transportation (Caltrans) "Standard Specifications."

1.03 ADMINISTRATIVE REQUIREMENTS

A. Submittal Procedures: Action and Informational Submittals shall be submitted in accordance with Section 01 33 00 - Submittal Procedures.

1.04 CLOSEOUT SUBMITTALS

A. Project Record Drawings:
   1. Conform to requirements specified in Section 01 78 39 - Project Record Documents.
   2. Accurately record locations of utilities remaining, re-routed utilities, new utilities, and newly discovered utilities by horizontal dimensions, elevations, inverts, and slope gradients.

1.05 ACTION SUBMITTALS

A. Import Topsoil:
   1. It is the Contractor's responsibility to determine if import topsoil is required on the Project.

2. If required, Contractor shall submit four 1/2-pound samples in nominal 1 quart-sized "zip-lock" plastic bags for each proposed import topsoil. Each sample shall include current accompanying fertility and structure analyses prepared by a recognized soil and plant laboratory.

1.06 QUALITY ASSURANCE

A. Adhere to requirements, recommendations, and Best Management Practices (BMPs) for storm water management as may be outlined in the Project Storm Water Pollution Prevention Plan (SWPPP) prepared for this project, or as required by governing agencies.

1.07 PROTECTION

A. Protect all existing structures, fences, roads, sidewalks, paving, curbs, and other items as necessary from earthwork activity.

B. Protect above or below grade utilities which are to remain.

C. Repair damage to any existing site features which are to remain. Repair and restoration shall be equal to quality and appearance of prior condition and to the satisfaction of the District's Representative.

1.08 FIELD CONDITIONS

A. Underground Utilities: Unknown buried utility lines may exist. If encountered, notify District's Representative immediately for direction and re-direct work to avoid delay.
   1. Cooperate and coordinate with District's Representative and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility District.
   2. Do not interrupt existing utilities serving occupied facilities without proper notification to, and written direction from, District's Representative.

B. Wet Conditions: No grading operations shall be conducted when excessively wet conditions exist as determined by the District's Representative.

C. Contractor shall provide de-watering equipment as required to continue scheduled operations and provide optimum working conditions at no additional cost to District.

D. Dry Conditions: Contractor shall apply sufficient water to materials during construction to properly compact materials and control dust. Contractor shall provide dust control in conformance with Section 10 of Standard Specifications and shall provide water to subgrades as necessary to achieve compaction goals.

1.09 GRADE STAKES AND LINES

A. Grading and subgrading shall be controlled by Contractor-installed intermediate grade stakes and lines necessary to obtain the finished grade elevations shown or implied in the Drawings. Subgrade and finish grade surfaces shall conform to the control planes established by these grade stakes and lines.

B. Protect and maintain all existing benchmarks, monuments, and other reference points. If disturbed or destroyed, they shall be replaced at the Contractor's expense.

C. Contractor shall set temporary benchmarks as necessary to properly complete construction operations.

1.10 SURVEYING

A. Contractor shall be responsible for hiring a licensed professional surveyor to perform all surveying, layout and staking in accordance with requirements specified in Section 01 71 23 - Field Engineering.

Contractor shall be responsible for informing District's Representative a minimum 2 working days' notice when staking and layout is scheduled so that a review of completed chalk lines and staking can take place.

1.11 TOLERANCES

A. Refer to related specification sections for grading tolerances of specified improvements.

PART 2 - PRODUCTS

2.01 PERFORMANCE CRITERIA

A. Excavations shall not exceed plus or minus 1/10-foot variation from dimensions and elevations shown or noted, unless otherwise accepted by District's Representative.

B. Grading Tolerance: Refer to related specification sections for grading tolerances of specified improvements.

2.02 MATERIALS

A. Fill Material: Soil excavated from the site or imported conforming to requirements for fill material contained in applicable portions of Division III Grading, Section 19 - Earthwork of the Standard Specifications.

B. Topsoil: Excavated material from top 6 inches maximum of existing grade at unpaved areas and/or import material graded free of roots and rocks larger than two inches, subsoil, debris, weeds, large mats of grass, and other deleterious material. Topsoil shall be approved by the District's Representative and comply with the additional requirements specified in Section 32 90 00 - Planting.

C. Subsoil: Excavated material below top 6 inches of existing grade, graded free of clay clods larger than 6 inches, rocks larger than 3 inches, and debris.

D. Permeable Fills: As specified in Section 32 11 00 - Base Courses

E. Water: Clean and free from deleterious amounts of acids, alkalis, salts, and organic matter.

F. Additional Materials: As noted in the Geotechnical Report.

PART 3 - EXECUTION

3.01 PREPARATION

A. Identify all required lines, levels, contours, datum, control points and property lines required to properly establish limits of work.

B. Verify elevations of critical existing grades as noted on Drawings and as directed by District's Representative. Notify District's Representative of discrepancies prior to start of work and re-direct work to avoid delay.

C. Identify all known below grade utilities. Stake and flag locations.

D. Identify and flag surface grades and utilities.

E. Contact Underground Service Alert (USA), 800-642-2444, and local utility companies to verify locations of existing utilities a minimum of 5 working days prior to excavation.

3.02 PROTECTION

A. Maintain and protect existing utilities remaining which pass through work area.

B. Perform excavation work near utilities by hand. Provide necessary protection as the work progresses.

C. Provide and maintain protection for walks, curbs, drains, trees, corners of structures, and other improvement, as necessary to prevent damage.

D. Barricade and/or cover open excavations occurring as part of this work and post with warning lights to the satisfaction of the District's Representative. Operate warning lights during hours from dusk to dawn each day and as otherwise required.

E. Keep adjacent properties, streets and drives clean of any dirt, dust, or stains caused by earthwork operations.

F. Upon discovery of unknown utility or concealed conditions, notify the District's Representative immediately and re-direct work to avoid delay.

G. Control dust on and near the work, and on and near off-site borrow areas.
   1. Thoroughly moisten surfaces as required to prevent dust from being a nuisance to the public, neighbors, and concurrent performance of any other activities that may occur on the site.
   2. Non-compliance with proper dust control measures will be cause for issuance of a "stop work" order by the District until such time as satisfactory measures can be implemented.

3.03 TOPSOIL EXCAVATION

A. Excavate topsoil from areas scheduled for paving or rough grading and stockpile material in neat wind-row(s) and in location(s) previously established and accepted in coordination with the District's Representative and which will cause least interference to construction operations.

B. Do not excavate topsoil that has become wetted to, or beyond, the saturation point that would be required for optimum compaction.

C. Stockpile topsoil in wind-row(s) of a height not to exceed 8 feet, protect from erosion, and cover as necessary to prevent formation of dust.

D. Topsoil staging areas shall be clearly defined and protected from other grading and utility operations.

3.04 ROUGH GRADING

A. Grade site subsoil to establish proper subgrade elevations and site contouring as described or implied in the Drawings:

B. Contouring:
   1. Construct landforms depicted in the Drawings to the satisfaction of the District's Representative.
   2. "Round-off" tops of slopes.
   3. "Feather" toes of slopes.

C. Compaction: Compact subgrade for the specific areas as follows unless otherwise noted:
   1. Areas to be Planted: Maximum 8-inch loose lifts to be between 85 percent and 88 percent relative compaction.

2. Areas to be Paved:
   a. Maximum 8-inch loose lifts to at least 95 percent relative density.
   b. Additional lifts should not be placed if the previous lift did not meet the required density, relative compaction, moisture content or if the soil conditions are not stable. The top 12 inches shall be compacted to at least 95 percent relative compaction.
   c. Fill soils shall be compacted to no less than 90 percent relative compaction at moisture content of 2 to 4 percent for pavement area.
   d. Compacted subgrade should be non-yielding under construction traffic, including a loaded ten-wheel truck such as a water or dump truck, in all pavement areas. Removal and subsequent replacement of some material (i.e. areas of excessively wet materials, unstable subgrade, or pumping soils) may be required to obtain the minimum 95 percent compaction to the recommended depth of 12 inches.
   e. Subgrade preparation for pavement areas shall extend laterally for at least two feet beyond the edge of pavement.
3. Areas to Receive synthetic Turf: Shall be as follows:
   a. Maximum 8-inch loose lifts to at least 90 percent relative density. The top 12 inches shall be compacted to at least 95 percent relative compaction.
   b. Additional lifts should not be placed if the previous lift did not meet the required density, relative compaction, moisture content or if the soil conditions are not stable.
   c. Fill soils shall be compacted to no less than 90 percent relative compaction at moisture content of 2 to 4 percent for pavement area.
   d. Compacted subgrade should be non-yielding under construction traffic, including a loaded ten-wheel truck such as a water or dump truck, in all pavement areas and synthetic turf subgrade areas. Removal and subsequent replacement of some material including areas of excessively wet materials, unstable subgrade, or pumping soils, may be required to obtain the minimum 95 percent compaction to the recommended depth of 12 inches.

D. Remove all excess subsoil material from site and dispose of in a legal manner. Refer to "Material Storage" below.

E. Entire project or individual field area shall be rough graded at one time. No earthwork operation shall occur for partial field areas without receiving direction from the District or prior written approval from the District.

3.05 EXCAVATION

A. Remove and dispose of all miscellaneous materials encountered when establishing required grade elevations:
   1. Miscellaneous materials can include but are not limited to: pavements and other obstructions, underground structures, utilities, abandoned irrigation materials, and other materials encountered per the discretion of the District's Representative.

B. Stability of Excavations:
   1. Comply with any applicable recommendations contained within the Project Geotechnical Report and requirements of agencies having jurisdiction.
   2. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.

C. De-watering: Provide and maintain, at all times during construction, ample means and devices with which to promptly remove and properly dispose of water from any source entering structural excavation, pipe trenches, or other excavations. All costs incurred from de-watering activities shall be paid for by the Contractor.

D. Excavation for Structures: Conform to elevations and dimensions shown in the drawings within a tolerance of plus-or-minus 1/10 (0.10) of a foot, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete form-work, installation of services, and quality review.

E. Excavation for Pavements: Cut surface under pavements to comply with cross-sections, elevations, and grades as shown in the Drawings.

F. Material Storage:
   1. Stockpile satisfactory excavated materials where appropriate, until required for use.
   2. Stockpile topsoil and subgrade soil in separate piles.
   3. Place, grade, and shape stockpiles for proper drainage.
   4. Locate and retain stockpiles away from edge of excavations.
   5. Dispose of excess soil material in a legal fashion after it has become evident that the material is no longer needed on the project and is of no value to the District.

3.06 TOPSOIL PLACEMENT

A. Thoroughly cross-rip all subgrade soil to a depth of 12 inches prior to placing the specified thickness of topsoil back into all applicable planting areas. Secure review and acceptance of ripping depth prior to placement of topsoil. Refer to Section 32 90 00 - Planting for this process.

B. Topsoil placement requirements for planting areas shall be as follows:
   1. Planting Areas: A minimum of 6 inches of clean, acceptable topsoil.
   2. Topsoil shall not be placed until all earthwork and utility operations are complete.
   3. Topsoil shall be installed at one time for entire project or entire field area. No partial placements shall occur.

C. Compact topsoil to 84 percent to 89 percent relative density.

D. Maintain slopes and gradients established during subgrade operations and shape landforms to satisfaction of the District's Representative.

E. Refer to Section 32 90 00 - Planting for finish grading information and finish grades at edge of planting areas and hardscape.

3.07 FIELD QUALITY CONTROL

A. Tolerances: Conform to Conform to Section 19 of the Standard Specifications, unless more stringent requirements in these Contract Documents are provided, in which place the more stringent tolerances shall govern. Refer to Section 01 71 23 - Field Engineering for additional project requirements.

B. The District Representative shall review and accept work at the following stages:
   1. Topsoil removal and stockpile.
   2. Grading plan for project. Plan shall provide strategy for grading sequence for entire site at one time or by field. Limits and sequence shall be reviewed and coordinated.
   3. Cross ripping of subgrade shall be reviewed and observed.

END OF SECTION

SECTION 31 23 00

EXCAVATION AND FILL

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Trenching, backfilling, and compaction required for, but not necessarily limited to, the following:
   1. Sanitary sewer line installation.
   2. Storm drainage system installation.
   3. Potable water line installation.
   4. Irrigation system installation.
   5. Electrical conduit installation.

B. Related Requirements:
   1. Section 01 33 00 - Submittal Procedures
   2. Section 01 71 23 - Field Engineering
   3. Section 01 78 39 - Project Record Drawings
   4. Section 02 41 13 - Site Clearing and Demolition
   5. Section 31 20 00 - Earth Moving
   6. Section 32 11 00 - Base Courses

1.02 REFERENCES

A. State of California, Business and Transportation Agency, Department of Transportation (Caltrans) "Standard Specifications."

1.03 SEQUENCING AND SCHEDULING

A. Refer to all other Contract Documents, determine the extent and character of related work, and properly coordinate work specified herein with that described elsewhere to produce a complete, operational installation.

1.04 CLOSEOUT SUBMITTALS

A. Project Record Drawings:
   1. Conform to requirements specified in Section 01 78 39 - Project Record Documents.
   2. Accurately record locations of utilities remaining, re-routed utilities, new utilities, and newly discovered utilities by horizontal dimensions, elevations, inverts and slope gradients as practical.

1.05 QUALITY ASSURANCE

A. Control of Work: Comply with Section 5 of the Standard Specifications.

B. Control of Materials: Comply with Section 6 of the Standard Specifications.

C. Trench Safety: Comply with applicable portions of Sections 5 and 7 of the Standard Specifications and requirements of OSHA and other agencies having jurisdiction).

1.06 FIELD CONDITIONS

A. Wet Conditions: No trenching shall occur when excessively wet conditions exist in the opinion of the District's Representative.

B. Dry Conditions: Contractor shall provide dust control in conformance with Section 10 of Standard Specifications and shall provide water to work as necessary to achieve compaction goals.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Materials shall be free of debris, roots, wood, scrap material, vegetative matter, refuse, soft unsound particles, or other deleterious and objectionable materials.

B. Bedding for Utility Piping: Sand conforming to Section 19-3.02F(2) of the Standard Specifications.

C. Native Backfill: Native backfill shall be acceptable soil material excavated from the project site. This material will be considered unclassified and no testing other than for compaction will be required. Additional material required for backfill shall be acceptable to the District's Representative.

D. Permeable Material: Permeable material shall be Caltrans Class ll permeable rock material.

E. Slurry Fill: Controlled low-strength fluid material (CLSM) consisting of water, Portland cement, aggregate, and fly ash with slump of 10 inches or more and an unconfined compressive strength of 200 psi or less.

F. Aggregate Base: As specified in Section 32 11 00 - Base Courses.

PART 3 - EXECUTION

3.01 PREPARATION

A. General:
1. Prior to trenching, the Contractor shall pothole existing utilities at locations indicated or implied on the Drawings, where new piping or utilities will cross existing utilities of uncertain depth to determine the elevation of the utility in question and ensure that the new line will clear the potential obstruction.
2. The Contractor shall mark out construction areas in white with non-permanent paint and contact Underground Service Alert (U.S.A.), 800-642-2444, to locate all known utilities a minimum 48 working hours prior to any excavation.
3. Should an existing crossing utility present an obstruction, the proposed line shall be adjusted as acceptable to the District's Representative to clear the existing utility.

3.02 TRENCH EXCAVATION

A. General:
1. Excavation shall include removal of water and materials that interfere with construction. Remove water which may be encountered in the trench by pumping or other methods prior to pipe laying, bedding and backfill operations. Trenches shall be sufficiently dry to permit proper jointing and compaction.
2. Contractor is responsible for directing vehicular and pedestrian traffic safely through or around the work area at all times.

3. The Contractor shall relocate, replace, reconstruct or repair, to an "as-was" or better condition, surface or subsurface improvements which are in the line of construction or which may be damaged, removed, disrupted or otherwise disturbed by the construction activities. Except as specified in other Sections or shown in the Drawings, this provision applies to all surface improvements of whatever nature such as walls, fences, above-grade utilities, landscaping, paving, structures, or other physical features whether shown in the Drawings or not and to all subsurface improvements such as utilities which may be indicated in the Drawings or marked in the field. The Contractor shall connect modified utilities to existing systems and leave work in an operating condition. The cost of this work shall be considered as included in other items of work and no additional compensation will be allowed.
4. The maximum allowable trench width at the top of pipe shall be 18 inches greater than the pipe diameter.
5. New utility trenches extending deeper than 2 feet below finish grade should be located a minimum of 5 feet away from footings and foundations.

B. Existing Paving Areas:
1. Existing asphalt paving over new trenches shall be sawcut, removed, and legally disposed. Existing asphalt paving shall be neatly sawcut 1 foot greater on each side than the trench width. If a longitudinal pavement joint or edge of pavement is located within 3 feet of the limit of excavation, intervening pavement shall be removed and replaced after completion of backfilling. If curb, gutter, or similar concrete improvement are to be replaced, the adjacent existing asphalt paving shall be sawcut 2 feet from the edge of concrete.
2. Existing Portland cement concrete paving over new trenches shall be sawcut to a minimum depth of 1-1/2 inches in straight lines either parallel to the curb or at 90-degree angles to the alignment of the sidewalk prior to being broken out. No section to be replaced shall be smaller than 30 inches in either length or width. If the sawcut would fall within 30 inches of a construction joint, expansion joint, or edge, or within 12 inches of a score mark, the concrete shall be removed to the joint, edge, or mark.

C. Walkway Areas:
1. Backfill for trenches or other excavations within walkway areas should be compacted in 6-inch maximum layers, unless otherwise noted, with hand-held tampers to assure adequate subgrade support.

D. Compacted Fill Areas:
1. Where trenches are to be excavated in compacted fill, these trenches shall be backfilled with the fill materials excavated and re-compacted in the layers and to the density specified for the particular area.

E. Open Trench:
1. No trench shall be left in an open un-protected condition at the end of the day. At the end of the day, open trenches shall be protected in a manner acceptable to the District's Representative.
2. Provisions for trench crossings and access shall be made at all street crossings, driveways, water gate valves, and fire hydrants unless otherwise acceptable to the District's Representative.

F. Excavated Material:
1. Excavated material not required for backfill or of value to the District shall be removed and legally disposed of by the Contractor at no additional cost.
2. Material excavated in streets and roadways shall be laid alongside the trench no closer than 2 feet from the trench edge and kept trimmed to minimize inconvenience to public traffic.
3. Provisions shall be made whereby all storm and waste water can flow uninterrupted in gutters or drainage channels to drainage structures.
4. Excavated material shall not be stored on existing landscaping or paving without provisions being made to protect the surface below from being stained or otherwise adversely affected.

G. Shoring

1. Should excavations extend more than 4 feet below existing ground surface, shoring will be required.
2. For trenching greater than 4 feet deep side slopes are not to exceed 1-1/2: 1 with a depth of 20' max.
3. When trenching greater than 4 feet deep, provide a trench box or shield approved by a PE or designed with accompanying tabulated data approved by a PE.
4. Provide shoring, bracing, or underpinning when trenching next to adjoining walls, sidewalks, or pavements. There shall be no trenching below the base or footing of a foundation that can reasonably expected to pose a hazard to workers unless one of the mentioned support systems is used.
5. Follow OSHA standards for maintaining, installing, and removing support systems.
6. Utility trenches shall be excavated according to accepted engineering practices following OSHA.

3.03 PIPE BEDDING

A. Stabilization of Trench Bottom:
   1. When the trench bottom is unstable due to wet or spongy foundation, trench bottom shall be de-watered as necessary. The District's Representative will determine the suitability of the trench bottom and the amount of sand, gravel, or crushed rock needed to stabilize the soft foundation.

3.04 TRENCH BACKFILL AND COMPACTION

A. General:
   1. Construct backfill in two operations, initial and final.
   2. Do not backfill where the foundation material in trench is already saturated, except as acceptable to the District's Representative. Provide a minimum cover as shown or specified.
   3. Where settling greater than the tolerance allowed for grading occurs in trenches and pits due to unstable subgrade material, excavate to the depth necessary to rectify the problem, then backfill and compact the excavation as specified herein and restore the surface to the required elevation.
   4. Place final backfill in 6-inch maximum loose lifts for utilities under roads, streets, concrete slabs or other areas to be paved and synthetic turf subgrade areas.
   5. Compact backfill surrounding ducts, conduits, pipes and other structures, including the top 12-inches of subgrade to 95 percent maximum density in accordance with ASTM D1557.
   6. Backfill to permit the rolling and compacting of the completed excavation with the adjoining material providing the specified density necessary to enable rock placement of paving of the area immediately after backfilling has been completed.

B. Initial Backfill:
   1. Prior to trench backfill, the condition of the trench and laying of pipe shall be acceptable to the District's Representative.
   2. Select backfill material shall be used as initial backfill for all utilities except irrigation piping, except as otherwise noted and specified.
      a. After the pipe has been properly laid and accepted by the District's Representative, selected backfill material shall be placed on both sides of the pipe and compacted to the depth shown in the Drawings.
      b. Compaction: The initial backfill material shall be hand tamped in layers not exceeding 4 inches in uncompacted depth and shall be brought up uniformly on both sides of the pipe to avoid bending or distortional stress. After hand-tamping, the relative compaction of the initial backfill material shall be at least 95 percent relative compaction.

C. Final Backfill:
   1. Native backfill material shall be used for final backfill, unless otherwise noted.
   2. Compaction: Final backfill compaction shall be by mechanical means with backfill material placed in layers not exceeding 6 inches in loose depth. Each layer shall be thoroughly compacted before succeeding layers are placed. The use of machine tampers, except manually held types, shall not be permitted. Final backfill shall be compacted to a relative compaction of 95 percent for paving

areas and synthetic turf subgrade area. In planting areas, provide acceptable topsoil to required depth compacted to 85 percent to 89 percent maximum relative compaction.

D. Jetting: No jetting will be allowed.

3.05 TRENCH SURFACING

A. General:
   1. In unimproved areas, the trench surface shall be restored to its original condition. No mounds of earth shall be left along the trench.
   2. Backfill shall be flush with adjoining grade in a firm, unyielding position with no visible settling for a period of one year after Final Acceptance.

B. Paved Areas:
   1. Temporary surfacing acceptable to the District's Representative shall be laid within 1 day after backfilling, except where the Contractor elects to place permanent surfacing within this time period, until permanent paving is installed.

END OF SECTION

SECTION 32 11 00

BASE COURSES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Grading and compaction of subgrade soil for areas to receive pavement, structures, and base material.
   2. Furnishing and placing of aggregate base material.

B. Related Requirements:
   1. Section 01 71 23 - Field Engineering
   2. Section 31 20 00 - Earth Moving

1.02 REFERENCES

A. State of California, Business and Transportation Agency, Department of Transportation (Caltrans) "Standard Specifications."

1.03 ADMINISTRATIVE REQUIREMENTS

A. Submittal Procedures: Action Submittals shall be submitted in accordance with Section 01 33 00 - Submittal Procedures.

B. Sequencing and Scheduling
   1. Work of this Section shall not proceed until all underground utilities and irrigation sleeving have been installed and accepted.
   2. Contractor shall schedule work so that installation of paving and surfacing occurs no later than 5 working days after placement and proper compaction of base materials. Base materials left un-paved longer than this time period shall be subject to testing and re-compaction at the contractor's expense.

1.04 ACTION SUBMITTALS

A. Certificates of compliance, including sieve analyses, for products and materials proposed to be used in work covered by this Section.

1.05 QUALITY ASSURANCE

A. Control of Work: Conform to Section 5 of the Standard Specifications.

B. Control of Materials: Conform to Section 6 of the Standard Specifications.

1.06 FIELD CONDITIONS

A. Wet Conditions: Do not prepare subgrade or place base material when excessively wet conditions exist as determined by the District's Representative.

B. Dry Conditions: Contractor shall provide dust control in conformance with Section 10 of Standard Specifications and shall provide water to subgrades and base courses as necessary to achieve compaction goals.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Materials shall be stockpiled on site in locations that, in the opinion of the contractor, cause least interference with construction operations and as acceptable to the District's Representative.

B. Materials shall not be stockpiled in proposed planting areas.

C. Protect materials from segregation, contamination and wind and water erosion.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Aggregate Base: Class 2, 3/4-inch maximum material conforming to Section 26-1.02A of the Standard Specifications. No recycled materials will be accepted.

PART 3 - EXECUTION

3.01 SUBGRADE PREPARATION

A. Preparation of subgrade shall conform to Section 6 of the Standard Specifications and as specified in Section 31 20 00 - Earth Moving.

B. Remove unsuitable subgrade material as necessary and replace with suitable material or aggregate base per the discretion of the District's Representative.

3.02 BASE MATERIAL PLACEMENT

A. Conform to Section 26 of the Standard Specifications.

B. Obtain acceptance of subgrade preparation work prior to placing base material thereon.

C. Place and compact base material in 6-inch maximum lifts unless otherwise noted. Compaction shall be at least 95 percent relative compaction.

D. Base material shall be moisture conditioned to between optimum and 3 percent above optimum prior to placement and compaction.

3.03 TOLERANCES

A. Conform to Section 26 of the Standard Specifications, unless more stringent requirements in these Contract Documents are provided, in which place the more stringent tolerances shall govern.

3.04 CLEAN-UP OF WORK AREA

A. The Contractor shall remove and legally dispose of excess materials, spoils, and debris from the job site on a daily basis.

3.05 PROTECTION OF FINISHED PRODUCT

A. The Contractor shall provide lighted barricades, signs, and other devices as necessary to prevent damage to finished base courses.

END OF SECTION

SECTION 32 18 00

MISCELLANEOUS PAVING AND SURFACING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Miscellaneous paving surfacing as shown on the Drawings including, but is not limited to, the following:
   1. Synthetic turf surfacing.

B. Related Requirements:
   1. Section 31 20 00 - Earth Moving
   2. Section 32 11 00 - Base Courses

1.02 ADMINISTRATIVE REQUIREMENTS

A. Submittal Procedures: Action and Informational Submittals shall be submitted in accordance with Section 01 33 00 - Submittal Procedures.

B. Sequencing and Scheduling:
   1. Coordinate applicable subgrade preparations, installations of base course materials, and all other work with work of this Section to insure a proper, timely installation.

1.03 ACTION SUBMITTALS

A. Samples:
   1. Turf, 4” x 4” size, illustrating details of finished product
   2. Loose samples, 1-foot square, of the turf backing and tufted fibers

1.04 QUALITY ASSURANCE

A. Materials Source: Sources of materials specified herein shall not be changed during course of work without review and written acceptance by the District’s Representative.

1.05 WARRANTY

A. Manufacturers: Provide District with turf manufacturer’s warranty which guarantees the usability of the synthetic turf system for its intended uses for a minimum 8-year period. The warranty coverage shall not be prorated nor limited to the amount of the usage.

PART 2 - PRODUCTS

2.01 SYNTHETIC TURF SURFACING

A. Synthetic Turf surfacing: Shall be ASC -Pet - by American Sports Construction, Inc, Contact: Joshua Sarratt at 209-412-0248 or approved equal. Synthetic Turf surfacing shall be IPEMA certified 60 oz. grass and have a tufted pile height of 1.125-inch tufted pile height. Synthetic turf shall not have sand or rubber infill.

PART 3 - EXECUTION

3.01 AGGREGATE BASE

A. Install as shown on the Drawings and in accordance with Section 32 11 00 – Base Courses.

3.02 SYNTHETIC TURF SURFACING

A. Install in accordance with manufacturers specifications at locations shown on the Drawings.

3.03 TOLERANCES

A. Vertical deviation from specified lines, grades, and detail cross sections shall not exceed 0.04 foot for all surfacing specified in this Section.

END OF SECTION