

PROJECT MANUAL
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**SECTION 01 10 00
SUMMARY OF WORK**

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work under separate contracts.
4. Access to site.
5. Coordination with occupants.
6. Work restrictions.
7. Specification and drawing conventions.

B. Related Section:

1. Division 01 50 00 Section "Temporary Facilities & Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.2 PROJECT INFORMATION

A. Project Identification: Rancho Campana High School

1. Project Location: 4235 Mar Vista Dr, Camarillo, CA 93010.

B. Owner: Oxnard Union High School District

1. Owner's Representative: James Ketcham, Director of Bond Projects & Workforce Housing.

C. Architect: Flewelling & Moody.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of the Project is defined by the Contract Documents and consists of the following:

1. New Walkway, Railing, Fencing and Gate.

1.4 WORK UNDER SEPARATE CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.

1.5 ACCESS TO SITE

- A. General: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
- B. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Limits: Limit site disturbance, including earthwork and clearing of vegetation, to 40 feet (12.2 m) beyond building perimeter; 10 feet (3 m) beyond surface walkways, patios, surface parking, and utilities less than 12 inches (300 mm) in diameter; 15 feet (4.5 m) beyond primary roadway curbs and main utility branch trenches; and 25 feet (7.6 m) beyond constructed areas with permeable surfaces (such as pervious paving areas, storm water detention facilities, and playing fields) that require additional staging areas in order to limit compaction in the constructed area.
 - 2. Driveways, Walkways and Entrances: Keep driveways loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.6 COORDINATION WITH OCCUPANTS

- A. Partial Owner Occupancy: Owner will not occupy the premises during entire construction period. Adjacent site is residential area. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.
 - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
 - 2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
- B. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with

completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.

1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to Owner acceptance of the completed Work.
2. Obtain a Certificate of Occupancy from authorities having jurisdiction before limited Owner occupancy.
3. Before limited Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of Work.
4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of Work.

1.7 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 1. Comply with limitations on use of public streets and other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours as regulated by the City of Camarillo.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 1. Notify Owner not less than two days in advance of proposed utility interruptions.
 2. Obtain Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
 1. Notify Owner not less than two days in advance of proposed disruptive operations.
 2. Obtain Owner's written permission before proceeding with disruptive operations.
- E. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet (8 m) of entrances, operable windows, or outdoor air intakes.
- F. Controlled Substances: Use of tobacco products and other controlled substances on the Project site is not permitted.

1.8 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 1 General Requirements: Requirements of Sections in Division 1 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on the Drawings are described in detail in the Specifications. One or more of the following are used on the Drawings to identify materials and products:
 - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 - 2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
 - 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

**SECTION 01 10 30
PROJECT PROCEDURES**

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Work included: This section establishes special project procedures regarding
 - 1. Documents and bid procedures;
 - 2. Protection of existing facilities;
 - 3. Limits of work and storage areas;
 - 4. Construction controls;
 - 5. Coordination;

1.2 QUALITY ASSURANCE

- A. Perform all work in strict accordance with pertinent requirements of these Specifications and, in the event no such requirements are determined, in conformance with the Architect's written direction.

1.3 SUBMITTALS

- A. None required.

PART 2 – PRODUCTS

2.1 GENERAL

- A. It is the intent of these Specifications and other Contract Documents to provide a complete workable design in all parts; any equipment shown or specified shall be furnished and installed with all accessories, controls, power, and full connections as may be necessary to assure safe and proper installation and operation.

2.2 PRECEDENCE

- A. The Contract and each of the Contract Documents are complementary and they shall be interpreted so that what is called for in any one shall be as binding as if called for in all.
- B. If there is a conflict between these Technical Specifications and any remaining portion of the bid, the provisions requiring the most expensive or elaborate method of work, materials, or equipment shall control. Items in direct conflict, discovered during the bid, should be brought to the attention of the Architect for clarification, by written Addenda. If clarification and/or Addenda is unable to be issued, the bidders shall bid the more expensive of the conflicting items/conditions; this provision shall govern the entire scope of this contract. Following Award of Bid, should the District elect to utilize the cheaper or less elaborate condition, a credit change Order shall be issued. Refer to related information in the General and Special Conditions. Contractor shall secure written permission from Architect before proceeding with work affected by omission or discrepancies in the Contract.

- C. Separate sections of this Specification are arranged only for convenience of Contractor, and nothing stated herein should be misconstrued as suggesting jurisdiction over items of work by any different building trades.
- D. When Agreement is signed, the Contractor will be given copies of the Architect's electronic bid plans to make one (1) set of reproducible prints and one (1) set of as-built electronic CD, the cost to be funded by the Bidder's General Conditions. All drawing print sets required by the awarded firm, subcontractors and suppliers shall be included. This print set and electronic CD set will also be used for the "as-built" drawings as referenced in Section 01 77 20, Project Record Documents. A complete As-Built submission shall consist of the prints and the electronic CD.

PART 3 – EXECUTION

3.1 CARE OF PRESENT BUILDINGS AND GROUNDS

- A. Contractor shall be held responsible, so far as his operations are concerned, for the care and preservation of the adjacent premises, utilities, walks, streets and co-terminus property. Any parts of them injured, damaged, or disturbed because of his work shall be repaired, replaced, or cleaned, at Contractor's expense, to the satisfaction of District Representative. Prior to commencement of the Work, the Contractor or his designated representative shall jointly review the site as a part of the Pre-Construction Conference.
- B. Any such facilities as existing roads, curbing, utility poles, or underground utility lines damaged by Contractor in execution of this Contract shall be restored to former condition by Contractor at no change in the Contract price to satisfaction of District.
- C. Contractor shall take all precautions and care to preserve and protect all trees and shrubs in the right-of-ways and on the property. No tree or trees shall be cut or felled without specific permission in writing from the Architect. Trees cut without explicit instructions do so shall be replaced at the expense of the Contractor.
- D. No pruning of trees is to be done except by specified instructions of the District. Soil within the spread of the tree branches shall not be disturbed. Advance notice shall be given to the District if roots of a diameter greater than 1" must be cut.
- E. Contractor shall record and submit to District for verification any damage prior to commencement of work. Any damage not recorded and verified by District is the responsibility of the Contractor to correct.

3.2 LIMITS OF WORK AND STORAGE AREAS

- A. Submit for District's approval a site utilization plan for construction. Plans shall indicate limits of work, storage areas, and truck routes.

3.3 CONSTRUCTION CONTROLS

- A. Dust palliation: In addition to cleanup provisions of the Specifications, Contractor shall take appropriate steps during and throughout term of the Project to prevent airborne dust due to work under this Contract. Water shall be applied to settle and prevent dust, particularly during excavation and moving of materials. No chemical palliatives shall be used without permission of the District.

- B. Noise control: Noise from job equipment shall be kept to a minimum by adequate mufflers and other means as approved by District, Architect.
- C. Interruptions of existing services shall be held to minimum and shall be made only at such times as the District directs. Approval of the District shall be requested at least 3 days in advance of desired interruption time. **Contractor shall be responsible for full Utility service to be maintained at all times to the adjacent buildings.**

3.4 SPECIAL COORDINATION REQUIREMENT

- A. It is possible that the District might have various projects under different contracts in progress simultaneously in areas adjacent to, or coincident with, areas involved in the Project.
- B. Contractor shall be responsible to coordinate the work with that of other contractors' work to allow access to sites and to avoid rework and damages to new work.
- C. Contractor shall submit a detailed critical-path schedule for District's approval before beginning work and shall make such changes in this schedule as required by District in order to assure smooth and proper execution of all works.

3.5 VERIFICATION OF EXISTING UTILITIES

- A. Prior to constructing any new underground utility the Contractor shall expose and verify all existing underground facilities that may conflict with the new utility, to ensure accuracy of the information shown on the Drawings.

3.6 HAZARDOUS MATERIALS

- A. Should asbestos, PCB or other hazardous materials be encountered in any area, immediately stop all work in that area and notify the District's representative; the District will remove all hazardous material, clean the area, and have it certified as safe by a Certified Industrial Hygienist before work under this contract may proceed in that area. A time extension will be granted for delay caused by this cleanup.
- B. Non-Specified asbestos removal from buildings shall be done under separate contract by the District.

3.7 ADDENDA AND CHANGE ORDER

- A. Changes in the Plans and Specifications shall be made by Addenda and Construction Change Directives (CCDs) approved by the Division of the State Architect. Minor modifications, as determined by the District, may be made to the Plans and Specifications in writing accompanied with the Architect's signature without the processing of a formal Change Order.

3.8 ACCESS PANELS

- A. Access panels are referenced in separate sections for different trades (mechanical, plumbing, electrical). It shall be the responsibility of the individual trades to provide the access panels (sized accordingly) required for their installations. Coordinate exact location with Construction Manager prior to installation.

3.9 FIRESAFETY DURING DEMOLITION

- A. Demolition of buildings shall be in accordance with Section 8706 and, where applicable, Sections 8704 and 8705 of the California Fire Code, most recent addition.
- B. Suitable fire hose, shall be maintained at the demolition site. Such hose shall be connected to an approved source of water and shall not impede fire department use of hydrants.
- C. Demolition operations involving cutting and welding shall be in accordance with Section 4907, C.F.C.
- D. Combustible waste material, trash and rubbish shall not be burned at the demolition site, unless approved. Accumulations of such material shall be removed from the site as often as necessary to minimize the hazards therefrom.
- D. When required by the District, for building demolition which is hazardous in nature, qualified personnel shall be provided to serve as on-site fire watch. The sole duty of fire watch personnel shall be to watch for the occurrence of fire.

3.10 FIRE SAFETY DURING CONSTRUCTION

- A. Buildings under construction shall be in accordance with Section 8704 of the California Fire Code, most recent edition.
- B. Fire department access roads shall be established and maintained in accordance with Section 902, C.F.C.
- C. Water mains and hydrants shall be installed and operational in accordance with Section 903.
- D. During the construction of a building and until the permanent fire-extinguishing system has been installed and is in service, fire protection shall be provided in accordance with Section 8704, C.F.C.
- E. Fire extinguishers shall be provided for the buildings under construction. The number and type of extinguishers and the type of extinguisher shall be suitable for the type of fire associated with the hazards present.
- F. Combustible Debris. Combustible debris shall not be accumulated within buildings. Combustible debris, rubbish and waste material shall be removed from building as often as practical. Combustible debris, waste material and trash shall not be burned on the site unless approved.
- G. Internal-combustion-powered construction equipment shall be used in accordance with the following:
 - 1. Equipment shall be located so that exhausts do not discharge against combustible material.
 - 2. When possible, exhausts shall be piped to the outside of the building.
 - 3. Equipment shall not be refueled while in operation.
 - 4. Fuel for equipment shall be stored in an approved area outside of the building.

- H. Temporary heating devices shall be located away from combustible materials, and attended and maintained by competent personnel.
- I. Smoking shall be prohibited. A suitable number and type of NO SMOKING signs shall be posted.
- J. Cutting and welding operations shall be in accordance with Article 49, C.F.C.
- K. The use of torched or flame-producing devices for the sweating of pipe joints shall be in accordance with Section 1109.3.2, C.F.C.
- M. The storage, use and handling of flammable liquids shall be in accordance with Article 79. Ventilation shall be provided for operation utilizing the application of materials containing flammable solvents.
- N. Open-flame devices and other sources of ignition shall not be located in areas where flammable materials are being used.
- O. Asphalt and tar kettles shall be located and operated in accordance with Section 1105, C.F.C.
- P. Temporary electrical wiring shall be in accordance with Section 8503, C.F.C.
- Q. When required by the chief, access to buildings for the purpose of fire-fighting shall be provided. Construction material shall not block access to buildings, hydrants or fire appliances.
- R. Telephone facilities shall be provided at the construction site for the purpose of emergency notification of the fire department. The street address of the construction site shall be posted adjacent to the telephone together with the fire department telephone number.
- S. A fire-protection plan shall be established by the Shell, Electrical and HVAC Contractors for each school site

3.11 REQUESTS FOR INFORMATION AND OTHER OFFICIAL CONTRACT CORRESPONDENCE

- A. Requests for Information (and/or Clarification) (hereinafter referred to as "RFI's") submitted by the Contractor to the District shall contain the following:
 - 1. Sequential RFI number.
 - 2. Date.
 - 3. Project Title and Information.
 - 4. Statement whether sent via facsimile only and/or hard copy to follow. It is acceptable to send a facsimile copy only; it is acceptable for the District to send a facsimile response only.
 - 5. Addressed to the District.
 - 6. Plan Sheet Reference and/or Spec. Section Reference including additional detail as required, such as column grid reference, or Part/Paragraph section of the Specification.
 - 7. Bold Reference citing the "Description of the Scope in Question" such as: "Ceiling Height in Classroom B123, Duct Clearances".

8. A complete, concise question regarding the issue. Note: If sketches, or other documentation, are attached, a reference shall be provided alluding to these attachments. If the RFI is originated from a subcontractor, this shall be noted.
 9. The date the answer is needed by so as not to impact schedule.
Note: The Contractor shall allow a minimum of 5 working days for each RFI.
 10. If a "yes" answer, or some such similar answer, would impact the contract schedule, this shall be noted.
 11. If there is a potential cost/credit impact to the District's answer, this shall be noted. Failure to notify the Architect at the time of the RFI may waive the Contractor's rights to such future claim.
 12. The signature of the Contractor or Contractor's superintendent.
 13. An area with printed lines for the District's response.
 14. A space for the Project Manager's signature and date.
 15. The Contractor's field office facsimile number printed on the RFI.
- B. The Contractor shall not submit more than six (6) RFI's in any one day, or more than twenty-four (24) RFI's in any one working week. It shall be the Contractor's responsibility to study the plans and specifications, in conjunction with his subcontractors, far enough in advance to submit the RFI's so as to not have an adverse impact upon the project sequencing or schedule.
- C. The Construction Manager (or General Contractor) shall be responsible for the distribution of all RFI's, once they have been answered by the Architect, in an appropriate and final manner, to all applicable trade contractors. The Architect shall make initial distribution to the District, Inspector of Record, Construction Manager (or General Contractor), as well as to her own consultants and engineers.
- D. The Construction Manager (or General Contractor) shall maintain an RFI log, and distribute the log, showing current status at each project meeting. The Construction Manager (or General Contractor) shall maintain a bound file of all the RFI's, with the District's response, including all applicable attachments, in the job trailer at all times during the project.
1. When applicable, all Contractors shall attach an RFI response to the Master Project Construction Set, at the appropriate location in the plans and/or specifications, if the answer affects, revises, or provides necessary clarification to the construction issue in question.
- E. Proposal Requests: When the Contractor has notified the Construction Manager (or General Contractor) that the response is generating either a potential cost or credit to the contract, the Construction Manager (or General Contractor) shall issue a proposal request to the Architect and District, and copy all applicable parties.
1. When the costs and/or credits have been submitted properly for the work in question, and have been reviewed by the Architect and District, and the cost(s) and/or credits have been agreed upon, the Construction Manager (or General Contractor) will then assign the item to the next change order in the billing cycle.

- F. Frivolous RFI's: The RFI format shall not be used for the following:
1. A method for getting the Architect and Consultants to perform the Contractor's duties of properly reviewing and coordinating the plans and specifications. The Contractor is asked to use discretion in submitting RFI's; simple questions can be solved by teleconference with the Architect, or bringing up questions at the weekly meetings. The Architect will work with the Contractor in defining what constitutes the difference.
 2. The method for getting the District to answer a subcontractor's question that normally is part of the trade bid Contractor's responsibility.
 3. A method for attempting to create additional cost to the contract where no additional cost is due.
 4. A method for luring to District into providing an answer clearly different than the documents require.
 5. In the event that the Contractor is deemed to be abusing the RFI process, the District reserves the right to "back-charge" the contract, per standard hourly rates, as a credit in dollars to be applied to contract extra costs.
- G. Status of District's Responses to RFI's: The Architect's written response, when applicable, shall be incorporated into the contract as the most current ruling or interpretation of the plans and specifications.
- H. CCDs: "Construction Change Directives" issued by the Architect, whether or not generated by an RFI, shall become official contract correspondence and incorporated into the contract. If necessary, and subject to the agreement of all parties, CCD issues may lead into a Proposal Request and Change Order.

END OF SECTION

**SECTION 01 10 45
CUTTING AND PATCHING**

PART 1 – GENERAL

1.1 SUMMARY

- A. This Section establishes general requirements pertaining to cutting (including excavating), fitting, and patching of the Work required to:
 - 1. Make the several parts fit properly;
 - 2. Uncover work to provide for installing, inspecting, or both, of ill-timed work.
 - 3. Remove and replace work not conforming to requirements of the Contract Documents.
 - 4. Remove and replace defective work.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
 - 2. In addition to other requirements specified, upon the District's request uncover work to provide for inspection by the District of covered work, and remove samples of installed materials for testing.
 - 3. Do not cut or alter work performed under separate contracts without the District's written permission.

1.2 SUBMITTALS

- A. Request for District's consent:
 - 1. Prior to cutting which affects structural safety, submit written request to the Project Manager for permission to proceed with cutting.
 - 2. Should conditions of the Work, or Schedule, indicate a required change of materials or methods for cutting and patching, notify District Project Manager and secure written permission and the required Change Order prior to proceeding.
- B. Notices to District Project Manager:
 - 1. Prior to cutting and patching performed pursuant to the District's instructions, submit cost estimate to District Project Manager. Secure the Project Manager's approval of the cost estimates and type of reimbursement before proceeding with cutting and patching.
 - 2. Submit written notice to District Project Manager designating the time the Work will be uncovered, to provide for the District's observation.

1.3 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen thoroughly trained and experienced in the necessary crafts and completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. For replacement of items removed, use materials complying with pertinent Sections of these Specifications.

2.2 PAYMENT FOR COSTS

- A. The Owner will reimburse the Contractor for cutting and patching performed pursuant to a written Change Order, after claim for such reimbursement is submitted by the Contractor. Perform other cutting and patching needed to comply with the Contract Documents at no additional cost to the Owner.

PART 3 – EXECUTION

3.1 SURFACE CONDITIONS

- A. Inspection:
 - 1. Inspect existing conditions, including elements subject to movement or damage during cutting, excavating, patching, and backfilling.
 - 2. After uncovering the work, inspect conditions affecting installation of new work.
- B. Discrepancies:
 - 1. If uncovered conditions are not as anticipated, immediately notify the Architect and secure needed directions.
 - 2. Do not proceed until unsatisfactory conditions are corrected.

3.2 PREPARATION PRIOR TO CUTTING

- A. Provide required protection including, but not necessarily limited to, shoring, bracing, and support to maintain structural integrity of the Work.

3.3 PERFORMANCE

- A. Perform required excavating and backfilling as required under pertinent other Sections of these Specifications and OSHA standards for such work.
 - 1. Perform cutting and demolition by methods which will prevent damage to other portions of the Work and provide proper surfaces to receive installation of repair and new work.

2. Perform fitting and adjusting of products to provide finished installation complying with the specified tolerances and finishes.
3. Typically chip back existing adjoining plaster surfaces to expose the lath and building paper to permit proper lapping on new infill materials.

END OF SECTION

SECTION 01 31 00
PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Coordination drawings.
 - 2. Requests for Information (RFIs).
 - 3. Project meetings.

1.2 DEFINITIONS

- A. RFI: Request from Owner, Architect, or Contractor seeking information from each other during construction.

1.3 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required obtaining the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Pre-installation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.
9. Project closeout activities.

1.4 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings in accordance with requirements in individual Sections, where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
 1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - b. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- B. Coordination Drawing Organization: Organize coordination drawings as follows:
 1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire protection, fire alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid.
 2. Plenum Space: Indicate sub-framing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on Drawings.
 3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire protection, fire alarm, and electrical equipment.

4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
6. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are the Contractor's responsibility.

1.5 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 1. Project name.
 2. Project number.
 3. Date.
 4. Name of Contractor.
 5. Name of Architect.
 6. RFI number, numbered sequentially.
 7. RFI subject.
 8. Specification Section number and title and related paragraphs, as appropriate.
 9. Drawing number and detail references, as appropriate.
 10. Field dimensions and conditions, as appropriate.
 11. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 12. Contractor's signature.
 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

- C. RFI Forms: AIA Document G716 or Software-generated form with substantially the same content as indicated above, acceptable to Architect.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
 - 1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect's actions on submittals.
 - f. Incomplete RFIs or inaccurately prepared RFIs.
 - 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
 - 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 1 Section "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect and Owner's Project Manager in writing within **10** days of receipt of the RFI response.
- E. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect and Owner's Project Manager within seven days if Contractor disagrees with response.
- F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly.
 - 1. Project name.
 - 2. Name and address of Contractor.
 - 3. Name and address of Architect.
 - 4. RFI number including RFIs that were dropped and not submitted.
 - 5. RFI description.
 - 6. Date the RFI was submitted.
 - 7. Date Architect's response was received.

8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

1.6 PROJECT MEETINGS

- A. General: Architect will schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, and Architect, within three days of the meeting.
- B. Preconstruction Conference: Architect will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than **15** days after execution of the Agreement.
 1. Attendees: Authorized representatives of Owner, Architect, Contractor and its superintendent. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Applicable Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for processing RFIs.
 - g. Procedures for testing and inspection.
 - h. Procedures for processing Applications for Payment.
 - i. Distribution of the Contract Documents.
 - j. Procedures for processing Submittals.
 - k. Sustainable design requirements.
 - l. Preparation of record documents.

- m. Use of the premises and existing building.
 - n. Work restrictions.
 - o. Working hours.
 - p. Owner's occupancy requirements.
 - q. Responsibility for temporary facilities and controls.
 - r. Procedures for moisture and mold control.
 - s. Procedures for disruptions and shutdowns.
 - t. Construction waste management and recycling.
 - u. Parking availability.
 - v. Office, work, and storage areas.
 - w. Equipment deliveries and priorities.
 - x. First aid.
 - y. Security.
 - z. Progress cleaning.
3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
- 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect, and Owner's Project Manager, of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.

- g. Submittals.
 - h. Review of mockups.
 - i. Possible conflicts.
 - j. Compatibility problems.
 - k. Time schedules.
 - l. Weather limitations.
 - m. Manufacturer's written recommendations.
 - n. Warranty requirements.
 - o. Compatibility of materials.
 - p. Acceptability of substrates.
 - q. Temporary facilities and controls.
 - r. Space and access limitations.
 - s. Regulations of authorities having jurisdiction.
 - t. Testing and inspecting requirements.
 - u. Installation procedures.
 - v. Coordination with other work.
 - w. Required performance results.
 - x. Protection of adjacent work.
 - y. Protection of construction and personnel.
- 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 - 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 - 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: Architect will conduct progress meetings at agreed upon scheduled intervals.
- 1. Attendees: Representative of Owner, Architect and Contractor. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Progress cleaning.
 - 10) Quality and work standards.
 - 11) Status of correction of deficient items.
 - 12) Field observations.
 - 13) Status of RFIs.
 - 14) Status of proposal requests.
 - 15) Pending changes.
 - 16) Status of Change Orders.
 - 17) Pending claims and disputes.
 - 18) Documentation of information for payment requests.

3. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

**SECTION 01 33 00
SUBMITTAL PROCEDURES**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections:
 - 1. Division 1 Section "Operation and Maintenance Manuals" for submitting operation and maintenance manuals.
 - 2. Division 1 Section "General Commissioning Requirements" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action.
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.3 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or modifications to submittals noted by the Architect and additional time for handling and reviewing submittals required by those corrections.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. All submittals to be provided by Contractor within 15 days of award of bid.
- B. Architect's Digital Data Files: Electronic copies of CAD Drawings of the Contract Drawings will **not** be provided by Architect for Contractor's use in preparing submittals.
- C. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that requires sequential activity.

2. 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.
- D. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 1. Initial Review: Allow 18 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
 4. DSA Deferred Approval: In addition to the review periods indicated above allow 90 days for DSA review and approval.
- E. Identification and Information: Place a permanent label or title block on each paper copy submittal item for identification.
 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 3. Include the following information for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Construction Manager.
 - e. Name of Contractor.
 - f. Name of subcontractor.
 - g. Name of supplier.
 - h. Name of manufacturer.
 - i. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06 10 00.01).

Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06 10 00.01.A).

- j. Number and title of appropriate Specification Section.
 - k. Drawing number and detail references, as appropriate Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.
- F. Identification and Information: Identify and incorporate information in each electronic submittal file as follows:
- 1. Assemble complete submittal package into a single indexed file with links enabling navigation to each item.
 - 2. Name file with submittal number or other unique identifier, including revision identifier.
 - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-06 10 00.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-06 10 00.01.A).
 - 3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
 - 4. Include the following information on an inserted cover sheet:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name of Construction Manager.
 - e. Name of Contractor.
 - f. Name of firm or entity that prepared submittal.
 - g. Name of subcontractor.
 - h. Name of supplier.
 - i. Name of manufacturer.
 - j. Number and title of appropriate Specification Section.
 - k. Drawing number and detail references, as appropriate.
 - l. Location(s) where product is to be installed, as appropriate.
 - m. Related physical samples submitted directly.
 - n. Other necessary identification.

- G. Options: Identify options requiring selection by the Architect.
- H. Deviations: Identify deviations from the Contract Documents on submittals.
- I. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
 - 1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
- J. Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.
 - 1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- K. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- L. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, and authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- M. Use for Construction: Use only final submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements:
 - 1. Action Submittals: Submit Six paper copies of each submittal, unless otherwise indicated. Architect through owner's project manager will return at least two copies.
 - 2. Informational Submittals: Submit Four paper copies of each submittal, unless otherwise indicated. Architect and owner's project manager will not return copies.
 - 3. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 1 Section "Closeout Procedures."

4. Certificates and Certifications Submittals: Provide a 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.
 - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
 - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
 5. Test and Inspection Reports Submittals: Comply with requirements specified in Division 1 Section "Quality Requirements."
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 5. Submit Product Data before or concurrent with Samples.

6. Submit Product Data in the following format:
 - a. Six paper copies of Product Data, unless otherwise indicated. Architect, through owner's project manager, will return two copies.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 42 inches (750 by 1067 mm)].
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit four full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect, through Owner's Project Manager, will return one submittal with options selected.

5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit four sets of Samples. Architect and Owner will retain two Sample sets; remainder will be returned.
 - 1) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. Contractor's Construction Schedule: Comply with requirements specified in Division 1 Section "Project Record Documents."
- F. Application for Payment: Comply with requirements specified in Division 1 Section "Payment Procedures."
- G. Schedule of Values: Comply with requirements specified in Division 1 Section "Payment Procedures."
- H. Coordination Drawings: Comply with requirements specified in Division 1 Section "Project Management and Coordination."
- I. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- J. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on American Welding Society (AWS) forms. Include names of firms and personnel certified.
- K. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- L. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- M. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- N. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- O. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

- P. Product Test Reports: Submit written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- Q. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.
- R. Schedule of Tests and Inspections: Comply with requirements specified in Division 1 Section "Quality Controls."
- S. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- T. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- U. Field Test Reports: Submit reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- V. Maintenance Data: Comply with requirements specified in Division 1 Section "Operation and Maintenance Manuals."
- W. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally-signed PDF electronic file and three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance/Material Submittals: Refer to requirements in Division 1 Section "Project Closeout."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION

SECTION 01 42 00 REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.2 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

AA	Aluminum Association, Inc. (The)
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists
ABAA	Air Barrier Association of America
ABMA	American Bearing Manufacturers Association
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
AEIC	Association of Edison Illuminating Companies, Inc. (The)
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AHA	American Hardboard Association (Now part of CPA)
AHAM	Association of Home Appliance Manufacturers
AI	Asphalt Institute
AIA	American Institute of Architects (The)
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute

AITC	American Institute of Timber Construction
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)
ALSC	American Lumber Standard Committee, Incorporated
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts, Inc.
APA	Architectural Precast Association
APA	APA - The Engineered Wood Association
APA EWS	APA - The Engineered Wood Association; Engineered Wood Systems (See APA - The Engineered Wood Association)
API	American Petroleum Institute
ARI	Air-Conditioning & Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers Association
ASCE	American Society of Civil Engineers
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	ASME International (American Society of Mechanical Engineers International)
ASSE	American Society of Sanitary Engineering
ASTM	ASTM International (American Society for Testing and Materials International)
AWCI	Association of the Wall and Ceiling Industry
AWCMA	American Window Covering Manufacturers Association (Now WCMA)
AWI	Architectural Woodwork Institute
AWPA	American Wood Protection Association (Formerly: American Wood Preservers' Association)
AWS	American Welding Society
AWWA	American Water Works Association

BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)
BICSI	BICSI, Inc.
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International)
BISSC	Baking Industry Sanitation Standards Committee
BWF	Badminton World Federation (Formerly: IBF - International Badminton Federation)
CCC	Carpet Cushion Council
CDA	Copper Development Association
CEA	Canadian Electricity Association
CEA	Consumer Electronics Association
CFFA	Chemical Fabrics & Film Association, Inc.
CGA	Compressed Gas Association
CIMA	Cellulose Insulation Manufacturers Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CRRC	Cool Roof Rating Council
CPA	Composite Panel Association
CPPA	Corrugated Polyethylene Pipe Association
CRI	Carpet and Rug Institute (The)
CRSI	Concrete Reinforcing Steel Institute
CSA	Canadian Standards Association
CSA	CSA International (Formerly: IAS - International Approval Services)
CSI	Cast Stone Institute
CSI	Construction Specifications Institute (The)
CSSB	Cedar Shake & Shingle Bureau

CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute)
DHI	Door and Hardware Institute
EIA	Electronic Industries Alliance
EIMA	EIFS Industry Members Association
EJCDC	Engineers Joint Contract Documents Committee
EJMA	Expansion Joint Manufacturers Association, Inc.
ESD	ESD Association (Electrostatic Discharge Association)
ETL SEMCO	Intertek ETL SEMCO (Formerly: ITS - Intertek Testing Service NA)
FIBA	Federation Internationale de Basketball (The International Basketball Federation)
FIVB	Federation Internationale de Volleyball (The International Volleyball Federation)
FM Approvals	FM Approvals LLC
FM Global	FM Global (Formerly: FMG - FM Global)
FMRC	Factory Mutual Research (Now FM Global)
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.
FSA	Fluid Sealing Association
FSC	Forest Stewardship Council
GA	Gypsum Association
GANA	Glass Association of North America
GRI	(Part of GSI)
GS	Green Seal
GSI	Geosynthetic Institute
HI	Hydraulic Institute
HI	Hydronics Institute
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)

HPVA	Hardwood Plywood & Veneer Association
HPW	H. P. White Laboratory, Inc.
IAS	International Approval Services (Now CSA International)
IBF	International Badminton Federation (Now BWF)
ICEA	Insulated Cable Engineers Association, Inc.
ICRI	International Concrete Repair Institute, Inc.
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)
IESNA	Illuminating Engineering Society of North America
IEST	Institute of Environmental Sciences and Technology
IGCC	Insulating Glass Certification Council
IGMA	Insulating Glass Manufacturers Alliance
ILI	Indiana Limestone Institute of America, Inc.
ISO	International Organization for Standardization Available from ANSI
ISSFA	International Solid Surface Fabricators Association
ITS	Intertek Testing Service NA (Now ETL SEMCO)
ITU	International Telecommunication Union
KCMA	Kitchen Cabinet Manufacturers Association
LMA	Laminating Materials Association (Now part of CPA)
LPI	Lightning Protection Institute
MBMA	Metal Building Manufacturers Association
MFMA	Maple Flooring Manufacturers Association, Inc.
MFMA	Metal Framing Manufacturers Association, Inc.
MH	Material Handling (Now MHIA)

MHIA	Material Handling Industry of America
MIA	Marble Institute of America
MPI	Master Painters Institute
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
NAAMM	National Association of Architectural Metal Manufacturers
NACE	NACE International (National Association of Corrosion Engineers International)
NADCA	National Air Duct Cleaners Association
NAGWS	National Association for Girls and Women in Sport
NAIMA	North American Insulation Manufacturers Association
NBGQA	National Building Granite Quarries Association, Inc.
NCAA	National Collegiate Athletic Association (The)
NCMA	National Concrete Masonry Association
NCPI	National Clay Pipe Institute
NCTA	National Cable & Telecommunications Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NeLMA	Northeastern Lumber Manufacturers' Association
NEMA	National Electrical Manufacturers Association
NETA	InterNational Electrical Testing Association
NFHS	National Federation of State High School Associations
NFPA	NFPA (National Fire Protection Association)
NFRC	National Fenestration Rating Council
NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NLGA	National Lumber Grades Authority
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association)

NOMMA	National Ornamental & Miscellaneous Metals Association
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	NSF International (National Sanitation Foundation International)
NSSGA	National Stone, Sand & Gravel Association
NTMA	National Terrazzo & Mosaic Association, Inc. (The)
NTRMA	National Tile Roofing Manufacturers Association (Now TRI)
NWWDA	National Wood Window and Door Association (Now WDMA)
OPL	Omega Point Laboratories, Inc. (Now ITS)
PCI	Precast/Prestressed Concrete Institute
PDCA	Painting & Decorating Contractors of America
PDI	Plumbing & Drainage Institute
PGI	PVC Geomembrane Institute
PLANET	Professional Landcare Network (Formerly: ACLA - Associated Landscape Contractors of America)
PTI	Post-Tensioning Institute
RCSC	Research Council on Structural Connections
RFCI	Resilient Floor Covering Institute
RIS	Redwood Inspection Service
SAE	SAE International
SDI	Steel Deck Institute
SDI	Steel Door Institute
SEFA	Scientific Equipment and Furniture Association
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE)
SGCC	Safety Glazing Certification Council
SIA	Security Industry Association

SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SMPTE	Society of Motion Picture and Television Engineers
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division)
SPIB	Southern Pine Inspection Bureau (The)
SPRI	Single Ply Roofing Industry
SSINA	Specialty Steel Industry of North America
SSPC	SSPC: The Society for Protective Coatings
STI	Steel Tank Institute
SWI	Steel Window Institute
SWRI	Sealant, Waterproofing, & Restoration Institute
TCA	Tile Council of America, Inc. (Now TCNA)
TCNA	Tile Council of North America, Inc.
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TMS	The Masonry Society
TPI	Truss Plate Institute, Inc.
TPI	Turfgrass Producers International
TRI	Tile Roofing Institute
UL	Underwriters Laboratories Inc.
UNI	Uni-Bell PVC Pipe Association
USAV	USA Volleyball
USGBC	U.S. Green Building Council
USITT	United States Institute for Theatre Technology, Inc.

WASTEC	Waste Equipment Technology Association
WCLIB	West Coast Lumber Inspection Bureau
WCMA	Window Covering Manufacturers Association
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association)
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association)
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California)
WIC	Woodwork Institute of California (Now WI)
WMMPA	Wood Moulding & Millwork Producers Association
WSRCA	Western States Roofing Contractors Association
WWPA	Western Wood Products Association

- C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

IAPMO	International Association of Plumbing and Mechanical Officials
ICC	International Code Council
ICC-ES	ICC Evaluation Service, Inc.
UBC	Uniform Building Code (See ICC)

- D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CE	Army Corps of Engineers
CPSC	Consumer Product Safety Commission
DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration

FCC	Federal Communications Commission
FDA	Food and Drug Administration
GSA	General Services Administration
HUD	Department of Housing and Urban Development
LBL	Lawrence Berkeley National Laboratory
NCHRP	National Cooperative Highway Research Program (See TRB)
NIST	National Institute of Standards and Technology
OSHA	Occupational Safety & Health Administration
PBS	Public Buildings Service (See GSA)
PHS	Office of Public Health and Science
RUS	Rural Utilities Service (See USDA)
SD	State Department
TRB	Transportation Research Board
USDA	Department of Agriculture
USPS	Postal Service

- E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities Available from U.S. Access Board
CFR	Code of Federal Regulations Available from Government Printing Office
DOD	Department of Defense Military Specifications and Standards Available from Department of Defense Single Stock Point
DSCC	Defense Supply Center Columbus (See FS)
FED-STD	Federal Standard (See FS)

FS	Federal Specification Available from Department of Defense Single Stock Point Available from Defense Standardization Program Available from General Services Administration Available from National Institute of Building Sciences
FTMS	Federal Test Method Standard (See FS)
MIL	(See MILSPEC)
MIL-STD	(See MILSPEC)
MILSPEC	Military Specification and Standards Available from Department of Defense Single Stock Point
UFAS	Uniform Federal Accessibility Standards Available from Access Board

- F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CBHF	State of California, Department of Consumer Affairs Bureau of Home Furnishings and Thermal Insulation
CCR	California Code of Regulations
CPUC	California Public Utilities Commission
TFS	Texas Forest Service Forest Resource Development

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

**SECTION 01 43 00
QUALITY CONTROL**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 2. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections:
 - 1. Divisions 2 through 33 Sections for specific test and inspection requirements.

1.2 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Mockups: Full size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
- D. Preconstruction Testing: Tests and inspections performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

- E. Product Testing: Tests and inspections that are performed by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade or trades.
- J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of **five** previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.3 CONFLICTING REQUIREMENTS

- A. Referenced Standards: 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 conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: 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 Architect for a decision before proceeding.

1.4 INFORMATIONAL SUBMITTALS

- A. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems.
 - 1. Seismic-force resisting system, designated seismic system, or component listed in the designated seismic system quality assurance plan prepared by the Architect.
 - 2. Main wind-force resisting system or a wind-resisting component listed in the wind-force-resisting system quality assurance plan prepared by the Architect.

- B. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

1.5 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Field Reports: Prepare written information documenting tests and inspections specified in other Sections. Include the following:
 - 1. Name, address, and telephone number of representative making report.
 - 2. Statement on condition of substrates and their acceptability for installation of product.
 - 3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - 4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 5. Other required items indicated in individual Specification Sections.

- C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to **ASTM E 329**; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
- H. Manufacturer's Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.

- b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. When testing is complete, remove test specimens, assemblies, mockups; do not reuse products on Project.
 - 2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- J. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
- 1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
 - 2. Notify Architect **seven** days in advance of dates and times when mockups will be constructed.
 - 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
 - a. Allow **seven** days for initial review and each re-review of each mockup.
 - 5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - 6. Demolish and remove mockups when directed, unless otherwise indicated.

1.7 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
- 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 - 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, **and the Contract Sum will be adjusted by Change Order.**
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
- 1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

2. Notify testing agencies at least **48** hours in advance of time when Work that requires testing or inspecting will be performed.
 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. **Manufacturer's Field Services:** Where indicated, engage a manufacturer's representative to observe and inspect the Work. Manufacturer's representative's services include examination of substrates and conditions, verification of materials, inspection of completed portions of the Work, and submittal of written reports.
- D. **Retesting/Reinspecting:** Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. **Testing Agency Responsibilities:** Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform any duties of Contractor.
- F. **Associated Services:** Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.

5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.8 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: **Owner will engage** a qualified **testing agency** and/or **special inspector** to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, **as indicated in Statement of Special Inspections attached to this Section**, and as follows:
- B. Special Tests and Inspections: Conducted by a qualified **testing agency** or **special inspector** as required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
 2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 6. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Division 1 Section "Execution Requirements."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 01 45 29
TESTING AND INSPECTION

1.01 SUMMARY

- A. Section Includes: Cooperate with the Owner's selected testing agency, the Project Inspector, and others responsible for testing and inspecting the Work, and assist the Owner by coordinating such testing and inspecting services as specified in this Section and/or elsewhere in the Contract Documents including the attached Division of State Architect Structural Tests and Inspections sheet (enclosed).
- B. Related Work Specified Elsewhere:
 - 1. Requirements for testing may be required in other Sections of these Specifications.
 - 2. Where no testing requirements are specified or required by reference standards or authorities having jurisdiction, the Owner may require such testing to be performed under current pertinent standards for testing. Payment for such testing will be made as described herein.
- C. Work Not Included:
 - 1. The Owner will select a pre-qualified independent testing laboratory and Inspector as approved by the Division of the State Architect, Office of Regulation Services.
 - 2. The Owner will pay for initial services of the testing laboratory as further described hereinafter.

1.02 QUALITY ASSURANCE

- A. The Owner will select an independent testing laboratory to conduct the tests. Selection of the material required to be tested shall be by the laboratory or the Owner's representative and not by the Contractor.
- B. Qualifications of Testing Laboratory: The testing laboratory shall be qualified to the Owner's acceptance in accordance with ASTM E 329. The testing laboratory shall be qualified by the Division of State Architect in accordance with Interpretation of Regulation No. 1R1-1.
- C. Codes and Standards: Testing, when required, will be in accordance with pertinent codes and regulations and with selected standards of the American Society for Testing and Materials and other organizations or agencies which publish recognized codes, standards, or tests. Refer to Article 3.04 – Required Testing of this Section.
- D. The project specifications shall be in accordance with the provisions of the Standard Specifications for Public Works Construction (SSPWC) 2018 Edition.

1.03 TEST REPORT DISTRIBUTION

- A. Promptly process and distribute required copies of test reports and related instructions to ensure necessary retesting and/or replacement of materials with the least possible delay in progress of the Work.

- B. One copy of test reports shall be forwarded to the Division of the State Architect by the testing agency. Such reports shall include tests made, regardless of whether such tests indicate that the material is satisfactory or unsatisfactory. Samples taken but not tested shall also be reported. Records of special sampling operations as required shall also be reported. The reports shall show that the material or materials were sampled and tested in accordance with the requirements of Title 24 and with the approved specifications. Test reports shall show the specified design strength. They shall also state definitely whether or not the material or materials tested comply with requirements.
- C. Each testing agency shall submit to the Division of the State Architect a verified report in duplicate covering tests which are required to be made by that agency during the progress of the project. Such report shall be furnished each time that work on the project is suspended, including tests up to that time, and at the completion of the project.

1.04 PAYMENT FOR TESTING SERVICES

- A. Initial Services: The Owner will pay for initial testing and inspection except as specifically modified herein-after or as specified otherwise in technical sections. Provided the results of inspection indicating compliance with the Contract Documents.
- B. Retesting: When initial tests or inspection indicate noncompliance with the Contract Documents, subsequent retesting or re-inspection occasioned by the noncompliance shall be performed by the same testing laboratory or Inspector and the costs thereof will be deducted by the Owner from the Contract Sum. Retesting and re-inspection will continue until test or inspection results indicate compliance.
- C. Code Compliance Testing: Inspections and tests required by codes or ordinances, or by authorities having jurisdiction and made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Owner, but back charged to the Contractor in case of retesting due to noncompliance.
- D. Specified Inspections and Tests: Tests and inspections specified in the Specifications, directly or by reference, shall be coordinated by the Contractor at his expense and paid for by the Owner. Corrections of noncompliance and test failures shall be paid for by the Owner, but shall be back charged to the Contractor. Re-inspection and retesting shall be in accordance with paragraph 1.04-B.
- E. Contractor's Convenience Testing: Inspecting or testing performed exclusively for the Contractor's convenience shall be the sole responsibility of and at the expense of the Contractor.

1.05 INSPECTION BY THE OWNER

- A. The Owner and his representatives will have access, for the purpose of inspection, to parts of the work and to the shops wherein the work is in preparation, and the Contractor shall maintain proper facilities and provide safe access for such inspection.
- B. The Owner shall have the right to reject materials and workmanship which are defective, and to require their correction. Rejected workmanship shall be satisfactorily corrected and rejected materials shall be removed from the premises without charge to the Owner. If the Contractor does not correct such rejected within a reasonable time, fixed by written notice, the Owner may correct rejected work and charge the expense to the Contractor.
- C. Should it be considered necessary or advisable by the Owner at any time before final acceptance of the entire work to make an examination of work already completed by removing or tearing out the same, the Contractor shall on request promptly furnish

necessary facilities, labor and materials. If such work is found to be defective in respect due to fault of the Contractor or his subcontractor, he shall defray expenses of such examinations and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the additional cost of labor and material necessarily involved in the examination and replacement will be allowed the Contractor.

1.06 PROJECT INSPECTOR

- A. An Inspector employed by the Owner in accordance with the requirements of State of California Building Code, Title 24, Part 1, and qualified in accordance with Division of State Architect will be assigned to the work. His duties are specifically defined in Title 24, Part 1, Section 4-342, reprinted herein:

42. Duties of the Project Inspector.

- (A) General: The Project Inspector shall act under the direction of the A/E/Engineer.
- (B) Duties: The general duties of the Project Inspector in fulfilling his or her responsibilities are as follows:

- (1) Inspection: He or she must have actual personal knowledge, obtained by his personal inspection of the work of construction in stages of its progress, that the requirements of the approved plans and specifications are being completely executed.

Inspection means complete inspection of every part of the work. Work, such as concrete work or brick work which can be inspected only as it is placed, shall require the constant presence of the Project Inspector. Other types of work which can be completely inspected after the work is installed may be carried on while the Inspector is not present. In any case, the Project Inspector must personally inspect every part of the work. In no case shall the Project Inspector have or assume duties which will prevent him or her from providing inspection.

The Project Inspector may obtain personal knowledge of the work of construction, either on-site or off-site, performed under the inspection of a Special Inspector or Assistant Inspector from the reporting of others on testing or inspection of materials and workmanship for compliance with the plans, specifications and applicable standards. The exercise of reasonable diligence to obtain the facts shall be required.

- (2) Relations with A/E/Engineer: The Project Inspector shall work under the general direction of the A/E/Engineer. Inconsistencies or seeming errors in the A/E/Engineer for his interpretation and instructions. In no case, however, shall the instruction of the A/E/Engineer be construed to cause work to be done which is not in conformity with the approved plans, specifications, and change orders.
- (3) Job File: The Project Inspector shall keep a file of approved plans and specifications (including approved addenda or change orders) on the job, and shall immediately return unapproved documents to the A/E for proper action. The

Project Inspector, as a condition of his employment, shall have and maintain on the job, codes and documents referred to in the plans and specifications.

- (4) Project Inspector's Semi-Monthly Reports: The Project Inspector shall keep the A/E/Engineer thoroughly informed as to the progress of the work by making semi-monthly reports in writing as required in Section 37.

- (5) Construction Procedure Records: The Project Inspector shall keep a record of certain phases of construction procedure.

All such records of construction procedure shall be kept on the job until the completion of the work. These records shall be made a part of the permanent school records.

- (6) Deviations: The Project Inspector shall notify the Contractor, in writing, of deviations from the approved plans and specifications which are not immediately corrected by the Contractor when brought to his or her attention. Copies of such notice shall be forwarded immediately to the A/E/Engineer.

Failure on the part of the Project Inspector to notify the Contractor of deviations from the approved plans and specifications shall in no way relieve the Contractor of responsibility to complete the work covered by his or her contract in accordance with the approved plans and specifications and laws and regulations.

- (7) Verified Reports: The Project and Special Inspectors shall each make and submit to the Division of the State Architect verified reports.

The Project Inspector shall prepare and deliver to the Division of the State Architect detailed statements of fact regarding materials, operations, etc., when requested.

- (C) Violations: Failure, refusal, or neglect on the part of the Inspector to notify the Contractor of work which does not comply with the requirements of the approved plans and specifications, or failure, refusal, or neglect to report immediately, in writing, such violation to the A/E/Engineer, to the School Board, and to the Division of the State Architect shall constitute a violation of the act and shall be cause for the Division of the State Architect to take action.

Note: Authority cited: Section 39152 and 81142, Education Code.
Reference: Sections 39151, 39153, 81141 and 81143, Education Code."

- B. The work of construction in stages of progress shall be subject to the personal continuous observation of the Project Inspector as continuous observation is defined by Title 24. He shall have free access to all parts of the work at any time. The Contractor shall furnish the Project Inspector reasonable facilities for obtaining such information as may be necessary to keep him fully informed respecting the progress and manner of the work and the character of the materials. Inspection of the work shall not relieve the Contractor from obligation to fulfill this Contract.

1.07 OWNER'S OTHER PERSONNEL

- A. From time to time, other personnel in the employ of the Owner may inspect the Work when the Work is in progress but shall have no authority to direct the Contractor or request changes in the Work except as may be provided elsewhere in the Contract Documents.

1.08 REPRESENTATIVE OF THE DIVISION OF THE STATE ARCHITECT

- A. Architect shall have access to the site in accordance with Title 24, Part 1, 4-333.
- B. Field Engineers and Inspectors from D.S.A. Structural Safety Section, Fire & Life Safety Review and Access Compliance shall have access to the site in accordance with Title 24, Part 1, 4-334.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

3.01 COOPERATION WITH TESTING LABORATORY AND INSPECTORS

- A. Inspectors and representatives of the testing laboratory shall have access to the work. Provide facilities for such access in order that the testing, inspection, and the obtaining of samples may be done properly.
- B. Contractor shall deliver material specimens to the Owner's testing lab, which must by terms of the Contract be tested prior to inclusion in the Project, at least 45 days prior to scheduled delivery to the job site.
- C. Material shipped by the Contractor from the source of supply prior to having satisfactorily passed such testing and inspection or prior to the receipt of notice from said representative that such testing and inspection will not be required shall not be incorporated in the job.

3.02 TAKING SPECIMENS

- A. Field specimens and samples for testing, unless otherwise provided in these Contract Documents, shall be selected and taken by the Testing Laboratory or Project Inspector and not the Contractor. Sampling equipment and personnel will be provided by the testing laboratory. Deliveries of specimens and samples to the testing laboratory will be performed by the testing laboratory. Soil samples for approval of import fill shall be picked-up by the Testing Laboratory.

3.03 SCHEDULES FOR TESTING

- A. Establishing Schedule:
 - 1. By advance discussion with the testing laboratory selected by the Owner, determine the time required for the laboratory to perform its tests and to issue each of its findings.
 - 2. Provide required time within the construction schedule.

- B. Revising Schedule: When changes of construction schedule are necessary during construction, coordinate such changes of schedule with the testing laboratory as required.
- C. Adherence to Schedule: When the testing laboratory is ready to test according to the determined schedules, but is prevented from testing or taking specimens due to incompleteness of the work, extra charges for testing attributable to the delay may be back-charged to the Contractor and will be deducted by the Owner from the Contract Sum.

3.04 REQUIRED TESTING

Tests and inspections for the following items, where applicable, will be required in accordance with referenced Sections/Chapters of California Building Code, 2016 Edition, Title 24, Part 2:

A. FOUNDATIONS & RETAINING WALL:

1. INSPECTION:

- a. Inspection of Driven Deep Foundations 1704A.8
- b. Inspection of Cast-In-Place Deep Foundation 1704A.9

B. CONCRETE (Chapter 19A)

1. MATERIALS:

- a. Portland Cement 1704A.4.1;
1916A.1
- b. Concrete Aggregates 1704A.4.1;
1903A.3
- c. Shotcrete Aggregates 1913A.3
- d. Reinforcing Bars 1704A.4.1;
1916A.2
- e. Pre-stressing Steel & Anchorage 1704A.4.1;
1916A.3

2. QUALITY:

- a. Proportions of Concrete 1905A.2;
1905A.3;
1905A.4
- b. Strength Tests of Concrete 1905A.1.1;
1905A.6
- c. Shotcrete Proportions 1913A.2
- d. Shotcrete Cores 1913A.5
- e. Composite Construction Cores 1916A.4

	f.	Gypsum Concrete Strength Tests	1914A; 1916A.6
3.		INSPECTION:	
	a.	Job Site	1905A.7
	b.	Batch Plant	1704A.4.2
	c.	Waiver of Batch Plant	1704A.4.3
	d.	Prestressed Concrete	1704A.4.4
	e.	Shotcrete	1704A.17; 1913A
	f.	Reinforcing Bar Welding	1903A.7; Table 1704A.3
	g.	Post-Installed Anchors in Concrete	1916A.7
C.		LIGHT WEIGHT METALS	
1.		MATERIALS	
	a.	Alloys	2002.1
	b.	Identification	2002.1
2.		INSPECTION	
	a.	Welding	2003.1
D.		MASONRY	
1.		MATERIALS	
	a..	Masonry units	2103A.1
	b.	Portland cement, lime	2103A
	c.	Mortar and grout aggregates	2103A.8; 2103A.12; 2103A.12.3
	d.	Reinforcing bars	2103A.13
2.		QUALITY	
	a.	Portland cement tests	1916A.1
	b.	Mortar and grout tests	2105A.2.2.1.4
	c.	Masonry prism test	2105A.2.2.2
	d.	Masonry core tests	2105A.4

	e.	Masonry Unit Test	2105A.2.2.1
	f.	Reinforcing bar tests	1916A.2
3.		INSPECTION	
	a.	Reinforced masonry	1704A.5
	b.	Reinforced Bar Welding	1704A.3.1.3; 1903A.7
E.		STRUCTURAL STEEL	
1.		MATERIALS	
	a.	Structural Steel	2205A.1
	b.	Cold Form Steel	2209A.1
	c.	Identification	2203A.1
2.		QUALITY	
	a.	Tests of Structural and Cold Form Steel	2210A.1
	b.	Tests of High Strength Bolts, Nuts, Washers	2212A.1
	c.	Tests of End Welded Studs	2212A.2
	d.	Steel Joists	2206A; 1704A.3.2.1
	e.	Non-Destructive Weld Tests	1704A.3.1
3.		INSPECTION	
	a.	Shop Fabrication	1704A.2; 1704A.3
	b.	Welding	1704A.3.1
	c.	Nelson Stud Welding	1704A.3
	d.	High Strength Bolt Installation	1704A.3.3
F.		WOOD	
1.		MATERIALS:	
	a.	Lumber and plywood	2303.1
	b.	Glued Laminated Members	2303.1.3
2.		INSPECTION:	
	a.	Glued Laminated Fabrication	1704A.6.3.1; 2303.1.3

- | | | |
|----|----------------------|---------------------------------------|
| b. | Timber Connectors | 1704A.6.4 |
| c. | Manufactured Trusses | 1704A.6.2;
1704.6.3.2;
2303.4.7 |

END OF SECTION

**SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Section:
 - 1. Division 1 Section "Summary" for limitations on work restrictions and utility interruptions.

1.2 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.
- B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.3 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

1.4 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1.5 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.8-mm-) thick, galvanized steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top rails. Provide privacy fabric screen.
- B. Portable Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.8-mm-) thick, galvanized steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top and bottom rails. Provide galvanized steel bases for supporting posts. Provide privacy fabric screen.

2.2 TEMPORARY FACILITIES

- A. Field Offices, General: Not Required.
- B. Common-Use Field Office: Not Required.
- C. Inspector Office: Not Required.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
 - 1. Locate facilities to limit site disturbance as specified in Division 1 Section "Summary."
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- C. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities. Contractor not to use adjacent school toilet facilities.
- E. Heating and/or Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- F. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
- G. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.
- H. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
 1. Install electric power service overhead or underground, unless otherwise indicated.
 2. Connect temporary service to Owner's existing power source, as directed by Owner.
- I. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- J. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line(s) for each field office.
 1. Provide additional telephone lines for the following:
 - a. Provide a dedicated telephone line for each facsimile machine in each field office.
 2. At each telephone, post a list of important telephone numbers.
 - a. Police and fire departments.
 - b. Ambulance service.

- c. Contractor's home office.
 - d. Architect's office.
 - e. Engineers' offices.
 - f. Owner's office.
 - g. Principal subcontractors' field and home offices.
3. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet (9 m) of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.

1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to Division 2 Section "Earthwork."
3. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to Division 2 Section "Asphalt Paving."

C. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

D. Parking: Street parking is available as posted.

- E. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
 - 2. Remove snow and ice as required to minimize accumulations.
- F. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
 - 1. Identification Signs: Provide Project identification signs as indicated on Drawings.
 - 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
 - 3. Maintain and touchup signs so they are legible at all times.
- G. Waste Disposal Facilities: Comply with requirements specified in Division 1 Section "Construction Waste Management."
- H. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Division 1 Section "Execution Requirements" for progress cleaning requirements.
- I. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- J. Temporary Elevator Use: Use of elevators is not permitted.
- K. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.
- L. Existing Stair Usage: Use of Owner's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.
 - 1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.
- M. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

- B. Temporary Erosion and Sedimentation Control: Comply with requirements of the latest SWRCB Construction General Permit or authorities having jurisdiction, whichever is more stringent and requirements specified in Division 2 Section "Site Clearing."
- C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to requirements of the latest SWRCB Construction General Permit or authorities having jurisdiction, whichever is more stringent.
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Tree and Plant Protection: Comply with requirements specified in Division 2 Section "Tree Protection and Trimming."
- F. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- G. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Obtain extended warranty for Owner. Perform control operations lawfully, using environmentally safe materials.
- H. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel.
- I. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.
- J. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- K. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- L. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.

- M. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.

1. Prohibit smoking in construction areas.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
- B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect materials from water damage and keep porous and organic materials from coming into prolonged contact with concrete.
- C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
 2. Keep interior spaces reasonably clean and protected from water damage.
 3. Discard or replace water-damaged and wet material.
 4. Discard, replace or clean stored or installed material that begins to grow mold.
 5. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.
- D. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
 2. Remove materials that can not be completely restored to their manufactured moisture level within **48** hours.

3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 1 Section "Closeout Procedures."

END OF SECTION

**SECTION 01 60 20
STORAGE AND PROTECTION**

PART 1 – GENERAL

1.1 SUMMARY

- A. Protect products scheduled for use in the Work by means including, but not necessarily limited to, those described in this Section.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to the General Conditions and Supplementary Conditions.
 - 2. Additional procedures also may be prescribed in other Sections of these Specifications.

1.2 QUALITY ASSURANCE

- A. Include within the Contractor's quality assurance program such procedures as are required to assure full protection of work and materials.

1.3 MANUFACTURERS' RECOMMENDATIONS

- A. Except as otherwise approved by the District, determine and comply with manufacturers' recommendations on product handling, storage, and protection.

1.4 PACKAGING

- A. Deliver products to the job site in their manufacturer's original container, with labels intact and legible.
 - 1. Maintain packaged materials with seals unbroken and labels intact until time of use.
 - 2. Promptly remove damaged material and unsuitable items from the job site, and promptly replace with material meeting the specified requirements, at no additional cost to the Owner.
- B. The District may reject as non-complying such material and products that do not bear identification satisfactory to the District as to manufacturer, grade, quality, and other pertinent information.

1.5 PROTECTION

- A. Protect finished surfaces, including jambs and soffits of openings used as passageways, through which equipment and materials are handled.
- B. Provide protection for finished surfaces in traffic areas prior to allowing equipment or materials to be moved over such surfaces.

- C. Maintain finished surfaces clean, unmarred, and suitably protected until accepted by the Owner.

1.6 REPAIRS AND REPLACEMENTS

- A. In event of damage, promptly make replacements and repairs to the approval of the Architect and at no additional cost to the Owner.
- B. Additional time required to secure replacements and to make repairs will not be considered by the District to justify an extension in the Contract Time of Completion.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

**SECTION 01 77 00
CLOSEOUT PROCEDURES**

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Closeout Procedures.
- B. Final Cleaning.
- C. Pest Control.
- D. Adjusting.
- E. Demonstration and Instructions.
- F. Project Record Documents.
- G. Operation and Maintenance Data.
- H. Warranties.
- I. Spare Parts and Maintenance Materials.

1.02 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Architect's review.
- B. Prepare and submit to Architect a list of items to be completed or corrected, the value of the items on the list, and reasons why the Work is not complete.
- C. Submit written request to Architect for review of Work.
- D. Submit warranties, bonds, service agreements, certifications, record documents, maintenance manuals, receipt of spare parts and similar closeout documents.
- E. Make final changeover of permanent locks and deliver keys to Owner.
- F. Terminate and remove temporary facilities from Project site.
- G. Advise Owner of change over in heat and other utilities.
- H. Provide submittals to Architect that are required by governing or other authorities.
- I. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- J. Submit affidavit of payment of debts and claims, AIA Document G706.
- K. Submit affidavit of release of liens, AIA Document G706A.
- L. Submit consent of contractor's surety to final payment, AIA Document G707.

M. Owner will occupy all portions of the building as specified in Section 01110.

1.03 FINAL CLEANING

- A. Execute final cleaning prior to final review by Architect.
- B. Employ experienced professional cleaners for final cleaning.
- C. Clean interior and exterior glass and surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces.
- D. Vacuum carpeted and soft surfaces. Shampoo if visible stains exist.
- E. Clean equipment and plumbing fixtures to a sanitary condition.
- F. Clean exposed surfaces of grilles, registers and diffusers.
- G. Replace filters of operating mechanical equipment.
- H. Clean debris from roofs, gutters, downspouts, and drainage systems.
- I. Clean site; sweep paved areas, rake clean landscaped surfaces.
- J. Remove waste and surplus materials, rubbish, and construction facilities from the site.
- K. Clean light fixtures and replace burned out lamps and bulbs.
- L. Relamp all lamps and bulbs in lighting fixtures.
- M. Replace defective and noisy ballasts and starters in fluorescent fixtures.
- N. Leave project clean and ready for occupancy by Owner.

1.04 PEST CONTROL

- A. Engage an experienced, licensed exterminator to make final inspection and rid Project of rodents, insects, and other pests. Submit final report to Architect.

1.05 ADJUSTING

- A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.06 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of products, systems, and equipment to Owner's personnel two weeks prior to date of final review.
- B. For each demonstration submit list of participants in attendance.
- C. Provide two copies of video tape of each demonstration and instructions session.
- D. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- E. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.

- F. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed-upon times, at equipment location.
- G. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

1.07 PROJECT RECORD DOCUMENTS

- A. Maintain on site, one set of the following record documents; record actual revisions to the Work in contrasting color.
 - 1. Contract Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other Modifications to the Contract.
 - 5. Reviewed shop drawings, product data, and samples.
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. Specifications: Legibly mark and record at each Product Section in contrasting color ink, description of actual Products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Supplier and installer=s name and contact information.
 - 3. Changes made by Addenda and Modifications.
- E. Contract Drawings and Shop Drawings: Legibly mark each item in contrasting color ink to record actual construction including:
 - 1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 3. Field changes of dimension and detail.
 - 4. Details not on original Contract Drawings.
 - 5. Revisions to electrical circuitry and locations of electrical devices and equipment.
 - 6. Note change orders, alternate numbers, and similar information, where applicable.
 - 7. Identify each record drawing with the written designation of "RECORD DRAWING" located in prominent location.

- F. Record Digital Data Files: Immediately before inspection for Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
 - 1. Format: Same digital data software program, version, and operating system as the original Contract Drawings.
 - 2. Format: Annotated PDF electronic file with comment function enabled.
 - 3. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 - 4. Refer instances of uncertainty to Architect for resolution.
 - 5. Architect will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.
 - (a) Refer to Section 01 33 00 Submittal Procedures for requirements related to use of Architect's digital data files.
 - (b) Architect will provide data file layer information. Record markups in separate layers.
- G. Final Property Survey: Under the provisions of Section 01 77 20.
- H. Record Construction Schedule: Under the provisions of Section 01 31 00.
- I. Submit documents to Architect at time of Substantial Completion.

1.08 OPERATION AND MAINTENANCE DATA

- A. Summary:
 - 1. Organize operation and maintenance data with directory.
 - 2. Provide operation and maintenance manuals for products, systems, subsystems, and equipment.
 - 3. Refer to all Divisions for specific operation and maintenance manual requirements for the Work in those Divisions.
- B. Submit two sets prior to final review, bound in 8-1/2 inch x 11 inch, three ring D size binders with durable vinyl covers.
- C. Prepare binder covers with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of binder when multiple binders are required.
- D. Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with laminated plastic tabs.
- E. Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Engineers, Contractor, subcontractors, and major equipment suppliers and manufacturers.

- F. Part 2: Operation and maintenance instructions, arranged by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
1. Performance and design criteria.
 2. List of equipment.
 3. Parts list for each component.
 4. Start-up procedures.
 5. Shutdown instructions.
 6. Normal operating instructions.
 7. Wiring diagrams.
 8. Control diagrams.
 9. Maintenance instructions for equipment and systems.
 10. Maintenance instructions for finishes, including recommended cleaning methods and materials.
- G. Part 3: Project documents and certificates, including the following:
1. Shop drawings and product data.
 2. Air and water balance reports.
 3. Certificates.
 4. Warranties.

1.09 WARRANTIES

- A. Commencement of warranties shall be date of Substantial Completion.
- B. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.
- C. Provide duplicate notarized copies in operation and maintenance manuals.
- D. Execute and assemble documents from subcontractors, suppliers, and manufacturers.
- E. Provide Table of Contents and assemble in binder with durable plastic cover.
- F. Submit prior to final Application for Payment.
- G. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of warranty on the work that incorporates the products.
- H. Manufacturer's disclaimer and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with Contractor.

- I. When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.
- J. When work covered by warranty has failed and has been corrected, reinstate warranty by written endorsement. Reinstated warranty shall be equal to original warranty with equitable adjustment for depreciation.
- K. Upon determination that Work covered by warranty has failed, replace or repair Work to an acceptable condition complying with requirements of the Contract Documents.

1.10 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification Sections.
- B. Deliver to Project site and place in location as directed.
- C. Obtain signed receipt for delivery of materials and submit prior to request for final review by Architect.

END OF SECTION

**SECTION 01 77 01
PROJECT CLOSEOUT**

PART 1 – GENERAL

1.01 REFERENCE

- A. Requirements in Addenda, Alternates, Conditions, and Division 1 collectively apply to this work.

1.02 GENERAL

- A. As a prerequisite for final payment, Contractor to complete the work of this Section.
- B. Comply with requirements stated in "Conditions of The Contract" and in Specifications for administrative procedures in closing out the Work.
- C. Related Work Specified Elsewhere:
 - 1. Guarantee Form: See General Conditions.
 - 2. Close-out Submittals: See Respective Spec. Sections.

1.03 PREFINAL INSPECTION; SUBSTANTIAL COMPLETION

- A. Prefinal Inspection:
 - 1. Upon "substantial completion" of the Work, Contractor shall notify Architect and request a "prefinal inspection" of the Work.
 - 2. If Architect concurs that "substantial completion" has been reached, he will review the Work and list items to be completed or corrected. List will be amended as required to include items subsequently observed.
- B. Substantial Completion Defined: "Substantial Completion" of the Work is the status, as approved by the Architect, when construction is sufficiently complete, in accordance with the Contract Documents, so District can occupy or utilize the Work for the use for which it is intended, without incomplete work scope items either interior or exterior.

1.04 FINAL INSPECTION

- A. Reference: See General and Supplementary Conditions, titled "Final Adjustment And Completion".
- B. Final Inspection: When Contractor has complied with above Article, Architect will review the Work and list any items to be completed or corrected.
- C. Contractor shall correct and/or complete the Work.

1.05 GUARANTEES

- A. General: Contractor shall guarantee in writing to District that:

- B. "Contractor will repair or replace any and all work, together with any other work which may be displaced, damaged or marred in so doing, that may prove defective in workmanship and/or materials, or fail to conform to contract provisions and requirements within the period cited below, such period to begin on date of acceptance of work by District, without any expense whatsoever to District, ordinary wear and tear, and unusual abuse or neglect excepted."
- C. Format: Contractor shall submit guarantees typed in the format indicated in "Guarantee Form", See General Conditions Exhibit K.
- D. Number of Copies: Submit in duplicate to Architect.
- E. Required Guarantees:
 - 1. General: Submit all guarantees listed herein or required by various Spec. Sections; more stringent shall apply. Guarantee periods begin at the date of acceptance written on the "Notice of Completion" as accepted by the School District Board of Education.
 - 2. General Guarantee:
 - a. By General Contractor; For The Entire Work: 1 Year

1.06 WARRANTIES

- A. General: Submit all warranties required by various Spec. Sections.

1.07 CERTIFICATES

- A. General: Submit all certificates and Verified Reports required by various Spec. Sections or listed herein, notarized as required.

1.08 OPERATION & MAINTENANCE DATA

- A. General: Submit all manuals required by various General Conditions, Spec. Sections or listed herein; two copies each.

1.09 PROJECT RECORD DOCUMENTS

- A. See Section 01 77 20.
- B. Additional Information Required: In addition to the requirements in Section 01 77 20, provide the following:
 - 1. By measured dimensions (vertical and horizontal) from permanent improvements or buildings, locate the following new underground utilities, piping systems, and their appurtenances; and existing systems when known, uncovered, in work areas, adjacent to work areas, or modified as part of the work of this Project:
 - a. Site drainage systems piping and cleanouts.
 - b. Landscape sprinkler systems: Complete system, except non-pressure branch lines from automatic control valves to heads.
 - c. All fire protection systems.

- d. All plumbing systems.
 - e. All electrical systems.
 - f. All pool systems.
- 2. For gravity flow lines such as sewers and storm drains, locate all cleanouts, and indicate invert elevations at building lines, changes in direction, intersections, and property lines.
 - 3. Electrical Underground: In addition to locations, state number and sizes of conduits and wires, and provide invert elevations.
 - 4. Work Concealed Within Building Construction: Indicate by dimension the locations of Plumbing Systems, HVAC Systems, and Fire Protection Systems.
 - 5. Show any work performed that deviates from original Contract Documents.
 - 6. Show all work authorized by Change Order(s) and number of that Change Order.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

**SECTION 01 77 20
PROJECT RECORD DOCUMENTS**

PART 1 – GENERAL

1.01 SUMMARY

- A. Throughout progress of the Work of this Contract, maintain an accurate record of all changes in the Contract Documents, as described in 3.01 below.
- B. Contractor shall periodically transfer the recorded changes to a set of “as-built” documents, as described in Article 3.02 below, and submit such “as-builts” to Architect for Architect’s use as required.
- C. The Project Manager shall verify that as-builts are current, on a monthly basis, prior to the processing of pay requests. Pay Requests WILL NOT be processed unless the as-builts have been verified.
- D. Related work described elsewhere: Section 01 33 00 Submittal Procedures.

1.02 QUALITY ASSURANCE

- A. General: Delegate the responsibility for maintenance of Record Documents to one person on the Contractor’s staff as approved in advance by the Architect.
- B. Accuracy of records: Thoroughly coordinate all changes within the Record Documents, making adequate and proper entries on each page of a clean set of Specifications and each sheet of Drawings and other Documents where such entry is required to properly show the change. Accuracy of records shall be such that future search for items shown in the Contract Document may reasonably rely on information obtained from the approved Record Documents.
- C. Timing of entries: make all entries within 24 hours after receipt of information.

1.03 SUBMITTALS

- A. General: The Architect’s approval of the current status of Record Documents will be a prerequisite to the Architect’s approval of requests for progress payment and request for final payment under the Contract.
- B. Progress submittals: Prior to submitting each request for progress payment, secure the Architect’s approval of the Record Documents as currently maintained.
- C. Final submittals: Prior to submitting request for final payment, submit the Final Record Documents to the Architect and secure his approval.

1.04 PRODUCT HANDLING

- A. Use all means necessary to maintain the job set of Record Documents completely protected from deterioration and from loss and damage until completion of the work and transfer of the recorded data to the Final Record Documents. In the event of loss of recorded data, use all means necessary to secure the data to the Architect’s approval; such means shall include, if necessary in the opinion of the Architect, removal and replacement of concealing materials and, in such case, all replacements shall be to the standards originally specified in the record Documents.

PART 2 – PRODUCTS

2.01 RECORD DOCUMENTS

- A. Promptly following award of Contract, mark one set of documents (prints) as “RECORD DOCUMENTS - JOB SET”. All Addenda, issued during the Bid, shall be “cut and pasted” onto the appropriate sheets or pages of the Plans and Specifications.
 - 1. In addition to the requirements set forth, directing the Contractor to transfer all the information above to a “Reproducible Set of Prints” and “CAD CD”, the Contractor shall provide the actual JOB SET (“marked-up prints”) referenced above to the District at the completion of construction, which will remain the District’s property.

PART 3 – EXECUTION

3.01 MAINTENANCE OF JOB SET

- A. Preservation:
 - 1. Considering the Contract completion time, the probable number of occasions upon which the job set must be taken out for new entries and for examination, and the conditions under which these activities will be performed devise a suitable method for protecting the “RECORD DOCUMENTS - JOB SET” to the approval of the Architect.
 - 2. Do not use the Job Set for any purpose except entry of new data and for review by the Architect, until start of transfer of data to Final Record Documents.
 - 3. Maintain the Job Set at the site of work where designated by the Architect.
- B. Making entries on drawings: Using an erasable colored pencil (not ink or indelible pencil) clearly describe the change by note and by graphic line, as required. Date all entries. Call attention to the entry by a “cloud” around the area or areas affected. In the event of overlapping changes, different colors may be used for each of the changes.
- C. Making entries on other documents:
 - 1. Where changes are caused by directives issued by the Architect, clearly indicate the change by note in ink, colored pencil, or rubber stamp.
 - 2. Where changes are caused by Contractor-originated proposals approved by the Architect, including inadvertent errors by the Contractor that have been accepted by the Architect, clearly indicate the change by note in erasable colored pencil.
 - 3. Make entries in the pertinent documents as approved by the Architect.
- D. Conversion of schematic layouts:
 - 1. In most cases on the Drawings, arrangement of conduits and circuits, piping, ducts, and other similar items is shown schematically and is not intended to portray precise physical layout. Final physical arrangement is as determined by the Contractor subject to the Architect’s approval. However, design of future modifications of the facility may require accurate information as to the final physical arrangement of items that are shown only schematically on the Drawings.
 - 2. Show on the job set of Record Drawings, by dimension accurate to within 1”, the centerline of each run of items such as are described in Paragraph 3.1 D.1 above. Clearly identify the item by accurate note such as “CAST-IRON DRAIN,” “GALV.

WATER” etc. Show by symbol or note the vertical location of the item (“under slab,” “in ceiling plenum” “exposed,” etc.). Make all identification sufficiently descriptive that it may be related reliably to the Specifications.

3. The Architect may waive the requirements for conversion of schematic data where, in the Architect’s judgment, such conversion serves no beneficial purpose. However, do not rely upon waivers being issued except as specifically issued in writing by the Architect.
 4. Timing of entries: Be alert to changes in the work from how it is shown in the Contract Documents. Promptly, and in no case later than 24 hours after the change has occurred and been made known to the Contractor, make the entry or entries required.
- E. Accuracy of entries: Use all means necessary, including the proper tools for measurement, to determine actual locations of the installed items.

3.02 FINAL RECORD DOCUMENTS

- A. General: The purpose of the Final Record Documents is to provide factual information regarding all aspects of the work, both concealed and visible, to enable future modification of design to proceed without lengthy and expensive site measurement, investigation, and examination.
- B. Approval of recorded data prior to transfer: Using the “CAD CD” and “Reproducible Set of Prints”, and prior to start of transfer of recorded data thereto, secure a review by the Architect and Project Manager of all recorded data. Make all required revisions.
- C. Transfer of data to drawings: Carefully transfer all change data shown on the job set of Record Drawings to the CAD CD and corresponding prints, coordinating the changes as required, and clearly indicating at each affected detail and other drawing the full description of all changes made during construction and the actual location of items described in Paragraph 3.1 E. above. Call attention to each entry by drawing a “cloud” around the area or areas affected. Make all change entries on the sepias neatly, consistently, and in ink or crisp black pencil.
- D. Transfer of data to other Documents: If the documents other than Drawings have been kept clean successfully during progress of the work, and if entries have been sufficiently orderly thereon to the approval of the Architect, the job set of those Documents (other than Drawings) will be accepted by the Architect as Final Record Documents for those documents. If any such document is not so approved by the Architect, secure a new copy of that document from the Architect at the Architect’s usual charge for reproduction; carefully transfer the change data to the new copy and to the approval of the Architect.
- E. Review and approval: Submit the completed total set of Record Documents to the Architect as described in paragraphs 1.03 C, and 2.01 A above. Participate in review meeting or meetings as required by the Architect, make all required changes in the Record Documents, sign and date Record Documents, and promptly deliver the Final Record Documents to the Architect.

3.03 CHANGES SUBSEQUENT TO ACCEPTANCE

- A. The Contractor shall have no responsibility for recording changes in the work subsequent to acceptance of the work by the District, except for changes resulting from replacements, repairs, and alterations made by the Contractor as part of his guarantee.

END OF SECTION

**SECTION 01 77 40
WARRANTIES**

PART 1 – GENERAL

1.01 SUBMITTAL REQUIREMENTS

- A. Assemble Warranties and Service and Maintenance Contracts, executed by each of the respective Manufacturers, Suppliers, and Subcontractors.

Number of original signed copies required: Four (4) each.

Table of Contents: Neatly typed in orderly sequence.

Provide complete information for each one of the following items:

1. Product or Work Item.
2. Firm with name of principal, address, and telephone number.
3. Beginning date of Warranty or Service and Maintenance Contract.
4. Duration of Warranty or Service and Maintenance Contract.
5. Provide the following information for the District's Personnel:
 - a. Procedures in case of failure of malfunction.
 - b. Instances which affect Warranty.
6. Contractor, name of responsible principal, address, and telephone number.

1.02 SUBMITTAL FORM

- A. The list identifies the submittal form requirements for WARRANTIES:

1. Punch sheets for standard 3-ring binder.
2. Size: 8-1/2 x 11 inches.
3. Fold larger sheets to fit into binder.
4. Cover: Identify each packet with typed or printed title "WARRANTIES". List:
 - a. Title of Project.
 - b. Name of Contractor.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

**SECTION 02 41 19
DEMOLITION**

PART 1 - GENERAL

1.01 SUMMARY

- A. Provisions of the General and Supplementary Conditions and Division 1 apply to this section.
- B. Section Includes: Furnishing all labor, materials and equipment necessary for demolition, dismantling, cutting and alterations as indicated, specified, and required for completion of the Contract, as applicable. Includes items such as the following:
 - 1. Protecting existing work to remain.
 - 2. Cleaning soiled materials that are to remain.
 - 3. Disconnecting and capping utilities.
 - 4. Removing debris and equipment.
 - 5. Removal of items indicated on Drawings.
 - 6. Salvageable items to be retained by the Owner as indicated on the Drawings and during the pre-construction job walk.
- C. Related Sections:
 - 1. Section 01 50 00: Temporary Facilities and Controls
 - 2. Section 31 10 00: Site Clearing.

1.02 QUALITY ASSURANCE

- A. Comply with the following:
 - 1. Applicable codes, ordinances, regulations of local, municipal, state and federal authorities having jurisdiction.
 - 2. Obtain necessary permits and notices, post where required.
 - 3. Comply with safety requirements of the local fire department.
 - 4. Comply with ANSI A10.6.
 - 5. Comply with Standard Specification for Public Works Const.
- B. Demolition Firm Qualifications: Engage an experienced, licensed firm having a minimum of (5) years full time satisfactory experience in demolition work of similar scope and complexity to that indicated for this Project.
- C. Notify affected utility companies before starting Work and comply with their requirements.
- D. Carefully perform demolition work, by skilled workers experienced in building demolition procedures, using appropriate tools and equipment. Perform work, at all times, under the direct supervision of a supervisor approved by the Owner Inspector.

- E. Coordinate demolition with other trades to ensure correct sequence, limits, and methods of proposed demolition. Schedule work to create least possible inconvenience to the public and to facility operations.
- F. Pre-Demolition: Conduct conference at Project site 7 days prior to scheduled installation.
 - 1. Conference agenda shall include review and discussion of requirements of authorities having jurisdiction, instructions and requirements of serving utilities, sequencing and interface considerations and Project conditions.
 - 2. Conference shall be attended by supervisory and quality control personnel of Contractor and all subcontractors performing this and directly related work. Submit minutes of meeting to Owner's Representative for Project record purposes.

1.03 DEFINITIONS

- A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.
- B. Remove and Salvage: Items indicated to be removed and salvaged remain the Owner's property. Remove, clean, and pack or crate items to protect against damage. Identify contents of containers and deliver to location as directed by Owner's Representative.
- C. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare them for reuse; store and protect against damage. Reinstall items in locations indicated.
- D. Existing to Remain: Protect construction indicated to remain against damage and soiling during demolition. When permitted by the Owner's Representative, items may be removed to a suitable, protected storage location during demolition and then cleaned and reinstalled in their original locations.

1.04 OWNERSHIP OF MATERIALS

- A. Ownership of Materials: Except for items or materials indicated to be reused, salvaged, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

1.05 PROJECT CONDITIONS

- A. Drawings may not indicate in detail all demolition work to be carried out. Carefully examine existing conditions to determine full extent of demolition required. All utilities, whether shown on the drawings or not, to be capped at the property line U.N.O.
- B. Repair damage due to demolition activities to existing improvements to remain at no additional cost to the Owner. Repair or replace as directed by the Owner Inspector.
- C. Take measures to avoid excessive damage from inadequate or improper means and methods, or improper shoring, bracing or support. Repair or replace any resulting damage at no additional cost to the owner as directed by the Owner Inspector.
- D. If conditions are encountered that vary from those indicated, notify the Owner Inspector for instructions prior to proceeding. Owner assumes no responsibility for actual condition of structures to be demolished.

- E. Inform Owner immediately upon discovery of asbestos products, radioactive materials, toxic wastes or other hazardous materials. Do not remove hazardous materials without Owner authorization.
- F. Adjacent roadways/passageways:
 - 1. Maintain fire department access through all phases of the project.
 - 2. Obstruction of streets, walks or other adjacent facilities will not be allowed.

1.06 DIG ALERT NOTIFICATION

- A. Before any excavation in or near the public right-of-way, the Contractor must contact the Underground Service Alert of Southern California (Dig Alert) at 811 for information on buried utilities and pipelines.
- B. Delineation of the proposed excavation site is mandatory. Mark the area to be excavated with water soluble or chalk based white paint on paved surfaces or with other suitable markings such as flags or stakes on unpaved areas.
- C. Call at least Two (2) full working days prior to digging.
- D. If the members (utility companies) have facilities within the work area, they will mark them prior to the start of your excavation and if not, they will let you know there is no conflict. A different color is used for each utility type (electricity is marked in red, gas in yellow, water in blue, sewer in green, telephone and cable TV in orange).
- E. The Law requires you to hand expose to the point of no conflict 24" (inches) on either side of the underground facility, so you know its exact location before using power equipment.
- F. If caught digging without a Dig Alert ticket you can be fined as much as \$50,000 per California government code 4216.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

- A. Satisfactory Soil Materials: Soils approved by the testing geotechnical engineer and free of rock or gravel larger than 4 inches in any dimension, debris, waste, vegetation and other deleterious matter and as approved by the Geotechnical Engineer. Rocks or hard lumps larger than approximately 4 inches in diameter should be broken into smaller pieces or should be removed from the site. It is anticipated that most of the on-site soils may be reusable as engineered fill after any vegetation, construction debris, oversized material and deleterious material is removed from the site.
- B. Backfill & Native Fill Materials: The on-site soils may be reused as compacted engineered fill provided they comply to the requirements of "Satisfactory Soil Materials", as described above.
- C. Borrow / Imported Fill Material: Soil excavated from site or imported conforming to requirements for fill material.
 - 1. Materials for the fill shall be free from vegetable matter and other deleterious substances, shall not contain rocks or lumps of a greater dimension than is recommended by the geotechnical consultant, and shall be approved by the geotechnical consultant.

2. Imported materials should have a Plasticity Index (PI) not less than 5 nor greater than 15, as determined by ASTM D 4318; and expansion index not exceeding 10, as determined by ASTM D 4829; and a particle size not exceeding 3 inches as determined by ASTM D 422.
- D. Engineered Fill: Satisfactory Soil Materials / Borrow Fill Material, as described above, placed in lifts no greater than 8 inches thick (loose measurements), and compacted to a minimum of 90% of the soil's maximum dry unit weight.
- E. Backfill Material for Trenches:
 1. The on-site soils may be used for backfilling utility trenches from one foot above the top of pipe to the surface, provided the material is free of organic matter and deleterious substances. Any soft and/or loose materials or fill encountered at pipe invert should be removed and replaced with properly compacted fill or adequate bedding material. Also, rocks larger than 6 inches and boulders should not be used as backfill.

2.02 HANDLING OF MATERIALS

- A. Items scheduled for salvage by the Owner shall be delivered to a location designated by the Owner's Authorized Representative. Items shall be cleaned, packaged and labeled for storage.
- B. Items scheduled for reuse shall be stored on site and protected from damage, soiling and theft.

PART 3 - EXECUTION

3.01 GENERAL

- A. Protection:
 1. Do not begin demolition until safety partitions, barricades, warning signs and other forms of protection are installed.
 2. Provide safeguards, including warning signs, lights and barricades, for protection of occupants and the general public during demolition.
 3. Provide and maintain fire extinguishers. Comply with requirements of governing authorities.
 4. Maintain existing utilities which are to remain in service and protect from damage during operations.
- B. Safety: If at any time safety of existing construction appears to be endangered, take immediate measures to correct such conditions; cease operations and immediately notify the Owner Inspector. Do not resume demolition until directed by the Owner Inspector.
- C. Noise and Dust Abatement: Exercise all reasonable and necessary means to abate dust, dirt rising and undue noise. Perform necessary sprinkling and wetting of construction site to allay dust as required by applicable codes and ordinances
- D. Dust Control: Use water mist, temporary enclosures, and other suitable methods to limit the spread of dust and dirt. Comply with governing environmental protection regulations.

Do not create hazardous or objectionable conditions, such as flooding and pollution, when using water.

- E. Water for Dust Control: Contractor shall obtain and pay for all water required for his dust control operations. This may include, but is not limited to, payment of deposits to utility for construction meter, and payment of all monthly service and water charges. Construction meter shall be in place throughout construction period unless alternative arrangements are made with the Water Department to provide construction water for all purposes. Contractor shall be aware of water moratoriums and restrictions, and shall immediately advise Owner of effects on construction schedules.
- F. An 8 foot high, chain link fence, with visual screen and gates, shall be erected prior to any demolition operations at the construction limits perimeter. Coordinate the exact location with Owner. Comply with specification section 32 31 13: Chain Link Fence.
- G. Debris Removal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level.
- H. Progress Cleaning: Clean adjacent buildings and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to condition existing before start of demolition.

3.02 PREPARATION

- A. Prevent movement or settlement of adjacent structures. Provide bracing and shoring as necessary.
- B. Utilities:
 - 1. The Drawings do not purport to show all below-grade conditions and objects on the site. Contractor shall perform field investigations as necessary to establish location of underground utility services and other features affecting earthwork.
 - 2. Mark location of underground utilities on asphalt pavement with paint
 - 3. Disconnect and cap utility services; comply with requirement of governing authorities.
 - 4. Contractor shall arrange and notify utility company in advance of date and time when service needs to be disconnected.
 - 5. Do not commence demolition operations until associated disconnections have been completed.
 - 6. Should utilities and other below-grade conditions be encountered which adversely affect the Work, discontinue affected Work and notify Owner's Representative and Architect and request direction. Unforeseen conditions will be resolved in accordance with provisions of the General Conditions of the Contract.
 - 7. Should a utility line or structure be damaged, immediately notify the responsible utility company or agency and notify Owner's Representative and Architect.
 - a. Repair or replace all damaged utility lines and structures as directed by the responsible utility company or agency.

- b. Repair or replacement of damaged utility lines and structures whose location or existence has been made known to the Contractor shall be at no change in the Contract Time and Contract Price.
- C. Structures to be demolished shall be inspected for hazardous materials. Such materials shall be removed and disposed of before general demolition begins.
- D. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized in writing by Owner's Representative and Authority Having Jurisdiction (AHJ). Provide temporary services during interruptions to existing utilities, as acceptable to Owner's Representative and to Authority Having Jurisdiction (AHJ).

3.03 EXPLOSIVES

- A. Explosives: Use of explosives will not be permitted.

3.04 DEMOLITION

- A. Demolition, General:
 - 1. With certain exceptions, the Contractor shall raze, remove and dispose of all buildings and foundations, structures, paving, fences and other obstructions that lie wholly or partially within the construction limits identified on Drawings. The exceptions are utility-owned equipment and any other items the Owner/Documents may direct the Contractor to leave intact or re-use onsite. Cease demolition immediately if adjacent structures appear to be in danger.
 - 2. Conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
 - 3. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner's Representative and Authority Having Jurisdiction (AHJ). Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
 - 4. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around demolition area.
 - a. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
 - b. Protect existing site improvements, appurtenances, and landscaping to remain.
 - c. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
 - 5. Structural Stability: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of buildings to be demolished and adjacent buildings to remain. Strengthen or add new supports when required during progress of demolition.
 - 6. Below-Grade Construction: Demolish foundation walls and other below-grade construction, as follows:

- a. Remove below-grade construction, including foundation walls and footings, to at least 18-inches below grade, but at least to bottom of footing or foundation wall.
 - b. Completely remove below-grade construction, including foundation walls and footings.
7. Filling Below-Grade Areas: Completely fill below-grade areas and voids resulting from demolition of buildings and pavements with soil materials according to requirements specified in Section 31 20 00 - Earthwork.
8. Damages: Promptly repair damages to adjacent facilities caused by demolition operations.
9. Unless otherwise indicated on the plans, remove all demolished material from the site and dispose of at approved disposal sites. Comply with all requirements for recycling of demolished material as called for in Division 1 of this Specification. The contractor shall obtain necessary permits for the transportation of material from the site.

3.05 REMOVAL OF EXISTING PLUMBING AND ELECTRICAL EQUIPMENT AND SERVICES

- A. Remove existing plumbing and electrical equipment fixtures and services not indicated for reuse and not necessary for completion of work. Remove abandoned lines and cap unused portions of existing lines. The Contractor is responsible for completely surveying the site and locating all existing utilities, above and below ground, before contracting to perform the work.
- B. Asbestos – Cement (A-C) Pipe Removal and Disposal: The plans for the project may indicate that existing asbestos-cement pipe is to be removed from the ground. Where so indicated the Contractor shall excavate with care, expose the pipeline and remove the A-C pipe to the nearest joint. Should the plans not call out the removal of the A-C pipe and A-C pipe is encountered, the Contractor shall obtain approval from the Owner as to whether or not the A-C pipe is to be removed or can be left in place. Cutting of the pipe shall only be done if absolutely there is no other way to expose the length of pipe to the nearest joint that be separated and the Owner approves the cutting of the pipe. Cutting of the pipe shall be done with a mechanical saw with a pressure water source to dampen the pipe and the dust from the cutting. To remove a coupling, the coupling may have to be broken in the trench. The pipe once removed from the trench may be broken for handling. The breaking shall be done within a plastic bagging or sheeting material to minimize the release of asbestos fibers into the atmosphere. Once removed and broken, if necessary, the A-C material shall be bagged and disposed of legally with the Owner to be given a copy of all Contractor paperwork as to the legal disposal of the material. If the A-C pipe section(s) are removed intact the pipe can be removed by the Contractor from the project site and become the property and responsibility of the Contractor.

3.06 CLEANING

- A. Clean existing materials to remain, using appropriate tools and materials.
- B. Protect adjacent materials and equipment during cleaning operations.

3.07 PATCHING AND RESTORATION

- A. Patching: Where removals leave holes and damaged surfaces that will be exposed in the completed construction, such holes and damaged surfaces shall be patched and restored to match adjacent finished surfaces.
 - 1. Where new finish construction is applied over existing holes and damaged surfaces, patching and restoration shall be performed to the extent to make the substrate suitable for the provision of new finish construction.
 - 2. Surfaces of patched and restored areas shall be flush with the adjacent existing surfaces and shall closely match existing adjacent surfaces in texture and finish.
- B. Restoration of Site Finishes:
 - 1. Concrete paving: Where it is necessary to excavate a trench across make a cut in concrete paved areas, cut concrete cutting saw, full depth of paving.
 - 2. Bituminous paving: Where it is necessary to excavate a trench across make a cut in bituminous paved areas, either first score paving with a concrete cutting saw, in neat straight lines, prior to removing paving or make straight cuts with pneumatic spade.
 - 3. Restoration of paving: Restore all paved areas to their original condition using material of like type and quality as the removed paving. Paving in public ways shall conform to applicable requirements of authorities having jurisdiction. Repaired surfaces shall match existing adjacent paving except minimum depth shall be 3-1/2 inches where existing paving is less than 3-1/2 inches.
 - 4. Restoration of landscape planting: Restore soil and plant materials to match original condition, including additional topsoil, topsoil grading and preparation, new plant materials and plant maintenance during establishment period.

3.08 MAINTENANCE

- A. Install and maintain all erosion control devices, including sandbag and gravel bag dikes, silt fences, de-silting basins, inlet barricades, vehicle wash traps, and other features as required per Specification Section 01060.

3.09 CLEAN-UP/DISPOSAL

- A. Coordinate building access with the Owner Inspector. Review and schedule waste storage and removal, include truck access to site.
- B. Debris shall be dampened by fog water spray prior to transporting by truck.
- C. Debris pick-up area shall be kept broom-clean and shall be washed daily with clean water.
- D. Remove waste and debris, other than items to be salvaged. Turn over salvaged items to Owner, or store and protect for reuse where scheduled. Continuously clean-up and remove items as demolition work progresses. Do not allow waste and debris to accumulate in building or on site.

END OF SECTION

SECTION 32 31 13
SITE METAL FABRICATIONS

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Metal fabrications as indicated or required, including items such as:
 - 1. Steel pipe
 - 2. Square and rectangular steel tubing
 - 3. Pipe columns
 - 4. Gratings, frames and covers
 - 5. Miscellaneous fabrications as indicated

1.2 RELATED SECTION:

- A. Section 03 30 00 - Cast-in-Place Concrete
- B. Section 05 12 00 - Structural Steel
- C. Section 05 50 00 - Metal Fabrications
- D. Section 09 90 00 - Painting

1.3 QUALITY ASSURANCE:

- A. Reference specifications and standards:
 - 1. Design, fabricate and erect miscellaneous metals in accordance with AISC'S Design, Fabrication and Erection of Structural Steel for Buildings, Titles 24, CCR.
 - 2. AWS D-1. Code for Welding in Building Construction.

1.4 SUBMITTALS:

- A. All submittals shall be made in accordance with Section 01 33 00.
- B. Shop Drawings: Submit shop drawings showing materials used, dimensions, and anchoring details. In addition include the following: steel grades, fasteners, size and extent of welds.
- C. Certifications: Submit for items hot dip galvanized to identify items and to show compliance of application.

1.5 PRODUCT HANDLING:

- A. Store miscellaneous metal items above ground on platforms, skids or other approved supports.
- B. Protect metals from corrosion.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. Structural Steel Shapes: "Standard Specifications for Structural Steel", ASTM A 36.
- B. Steel Pipe:
 - 1. Steel pipe other than pipe used for structural purposes shall conform to "Standard Specification for Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses", ASTM A120, or ASTM A53.
- C. Cast Steel: "Standard Specification for Mild-to-Medium Strength Carbon-Steel Castings for General Application" ASTM A 27, Grade 65-35.
- D. Steel Bolts: "Standard Specification for Carbon Steel Externally and Internally Threaded Standard Fasteners", ASTM A 307, Grade A, with bolt head and nut dimensions conforming to ANSI B 18.2.1.
- E. Rolled steel plates and shapes:
 - 1. Shapes and plates shall conform to ASTM A 36, except for plates to be bent or cold-formed.
 - 2. Plates to be bent or cold-formed shall conform to ASTM A283, Grade C.
- F. Stainless Steel: ASTM A167 and A269, ANSI Type 304.
- G. Aluminum
 - 1. Extrusions: ASTM B221, 6063-T5 alloy, 1/8" thickness minimum.
 - 2. Sheets: 6061 alloy, No. 16 gage minimum.
- H. Cast Iron: Provide with minimum tensile strength in accordance with ASTM A48, Class 30, unless otherwise required.
- I. Malleable Iron casting: ASTM A47.
- J. Ductile Cast Iron: ASTM A536.
- K. Fastening Devices
 - 1 Threaded Fasteners:
 - a. For Steel: Low carbon steel, ASTM A307, hot dip galvanized for exterior use and where galvanized assemblies are indicated.
 - b. For Stainless Steel and Aluminum: Use stainless steel, ANSI Type 304.

2. Stud Bolts and Concrete Anchors: Galvanized studs of type and size as specified or required for each loading condition.

L. Primers and Protective Coatings

1. Ferrous Metal Primer-General Purpose: Use where no other primer specified on commercial blast or power tool cleaned prepared steel as undercoat for alkyd or oil base finish systems.
 - a. Modified Alkyd rust-Inhibitive Primer, Series 4 - "Versare 4-55", as manufactured by Tnemec Inc.
 - b. Alkyd Metal Primer "Kem Kromik" by Sherwin-Williams Co.
 - c. Or equal.
 2. For Elements of Steel Specified to be Top Coat Finished with Polyurethane Paint: Use two part high build Epoxy Primer with minimum 54% solids by volume. Provide Series 69, Hi-Build Epoxoline II, as manufactured by Tnemec, Epoxy high build by Sherwin Williams, Pitt-Guard DTR 97-147/149 by P.P.G., or equal. Use color tinted to approximated finish top coat. See also Section 09900, Painting.
 3. Protective Coatings For Other Conditions Specified for Item Fabrication or Installation:
 - a. Bituminous Paint: Fed. Spec. TT-C-494.
 - b. Zinc Dust Primer: Fed. Spec. TT-P-460.
 - c. Galvanizing Repair Paint: High zinc dust content paint for regalvanizing weld areas made in galvanized steel.
 4. Galvanizing: Reference Finishes for Fabrication Standards (Article 2.2) as specified herein.
- M. Supplementary Parts: Provide materials or assembly components as specified or shown for fabricated item or as necessary to complete each item of work, even though such supplementary parts are not shown or specified.

2.2 FABRICATION:

A. General:

1. For the fabrication of items which will be exposed to view, use only materials which are smooth and free of blemishes. Remove blemishes by grinding or by welding and grinding, prior to cleaning, treating and application of surface finishes including zinc coatings.
2. Form exposed work true to line and level with accurate angles and surfaces, and straight sharp edges.
3. Ease exposed edges to a radius of approximately 1/32 in., unless otherwise indicated or specified.
4. Form bent metal corners to the smallest radius possible without causing grain separation or otherwise impairing the work.

5. Form exposed connections with hairline joints that are flush and smooth, using concealed fasteners wherever possible.
 6. Remove loose rust, mill scale, cutting and punching burrs.
 7. Fabricate items in as large sections as practical to minimize field jointing.
- B. Welding:
1. Weld all shop connections and all field connections unless indicated or specified otherwise.
 2. Weld corners and seams continuously and in accordance with the requirements of the AWS Code. All welds shall be inspected as required in section "Structural Steel".
 3. Grind exposed welds smooth and flush to match and blend with adjoining surfaces.
- C. Galvanizing:
1. "Standard Specification for Zinc (Hot-galvanized) Coatings on Products Fabricated from Rolled, Pressed and Forged Steel Shapes, Plates, Bars, and Strip", ASTM A123.
 2. All exposed items shall be hot-dip galvanized, in as large sections as possible.
- D. Protective Coatings
1. Contact Condition Requiring Protection
 - 1) Whenever dissimilar metals will be in contact.
 - 2) Wherever aluminum metals will be in contact with or embedded in concrete, cement, mortar, plaster, or masonry.
 2. Application: Separate contact surfaces by coating each contact surface prior to assembly or installation with one coat of bituminous paint or zinc based primer to suit condition and approved by Architect. Mask off those surfaces not required to receive protective coating.
- E. Shop Finish:
1. All miscellaneous metal fabrications, except galvanized items, which will be exposed when the building is completed, shall receive a coat of primer.
 2. The primer specified shall be spray applied, covering all surfaces with a smooth unbroken film. The minimum dry film thickness of the primer shall be 2. mils.
 3. Preparation for Painting: All miscellaneous ferrous metal, except items specified galvanized or shop primed, shall be thoroughly cleaned of all mill scale, grease, dirt or rust, by scraping, wire brushing, or sandblasting and shall be delivered to the job unpainted, but in proper condition for painting. Shipping oil or other protective coatings shall be removed.

2.3 FABRICATED ITEMS

A. Miscellaneous Steel Framing

1. Framing, bracing, supports, framing, clip angles, shelf angles, plates, grating, etc., shall be of such shapes and sizes as indicated on the drawings and details, or as required to suit the condition.
 2. Fabricate with all necessary supports and reinforcing such as hangers, braces, struts, clip angles, anchors, bolts, nuts, welds, etc. as required to properly support and rigidly fasten and anchor steel framing in place and to steel, concrete, masonry and all other connecting and adjoining work.
 3. Framing steel shall be furnished in accordance with the applicable requirements of the "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings" by the American Institute of Steel Construction and as herein specified.
 4. All exposed items shall be hot-dip galvanized, in as large sections as possible.
- B. Sleeves in Foundation and Structure: Furnish for setting with concrete placement.
1. Sleeves through exterior foundation walls shall be minimum Schedule 40 steel pipe with inside diameter 2" larger than outside diameter of pipe or conduit (including insulation, if any) to be accommodated. Sleeves shall project one-half inch (1/2") on each side of finished wall. Fabricate with rectangular one-quarter inch (1/4") steel plate collar at center of wall condition, continuously welded to the perimeter of the sleeve, and six inches (6") wider than the sleeve outside diameter.
 2. Slots in concrete slabs shall be 12 gauge steel sheet, galvanized, of opening dimensions indicated, with strap anchors welded in place not more than twelve inches (12") on centers.
 3. All exposed items shall be hot-dip galvanized, in as large sections as possible.
- C. Steel Ladders: Conform to OSHA standards.
1. Vertical steel ladders shall be 18" wide with 3/4" diameter non-slip steel rungs spaces 12" on center welded to minimum 3/8" thick by 2-1/2" wide steel bar stringers.
 - a. As shown on drawings, or determined by detail engineering of Contractor's Engineer, provide ladder stringer of larger size to accommodate height (span) of ladder assembly.
 2. Fit rungs in centerline of side rails, plug weld and grind smooth on outer rail faces.
 - a. Use welded or bolted steel brackets, designated for adequate support and anchorage, and to hold the ladder clear of the adjacent wall surface with a minimum of 7" clearance from wall to centerline of rings.
 - b. Extend rails 42" above top rung, and return rails to wall or structure. Do not rest bottom of roof rails on finished roofing or waterproofing surface.
 3. Fabricate to install ladders with attachments to walls 6" from top and bottom and with maximum intermediate support spacing 36" on center from the specified top and bottom locations. All exposed items shall be hot-dip galvanized, in as large sections as possible.
- D. Steel Pipe Railing Handrails and Gates

1. Provide 1-1/2" "nominal diameter" (actual O.D. 1.9") steel pipe, minimum size, in accordance with ASTM standard, Schedule 40 minimum.
 - a. Brackets shall be as detailed on drawings or subject to approval of Architect.
 - b. Use heavier weight rails (Schedule 80) or reinforce rails internally if necessary to meet Performance Standards specified in Article 1.2, herein.
2. Construction: Form direction changes in rails using solid bar stock or elbows. Connections shall be shop welded and ground smooth and flush, except where field connections and expansion joints are required. Field connections may be welded, internal sleeve and plug weld, or internal sleeve and set screw. All exposed items shall be hot-dip galvanized, in as large sections as possible.
3. Secure handrails to walls with wall brackets. Coordinate bracket spacing to meet architectural alignments or otherwise required by Project Conditions.
 - a. Drill wall plate portion of the bracket into concrete to receive expansion bolts for concealed anchorage.
 - b. Locate brackets at not more than 5'-0" on center unless otherwise shown.
4. Provide wall return fitting, flush-type, with the same projection as indicated for wall brackets.
5. Post Anchorage: Provide side mounted or base mounted (set in concrete) post anchorage as indicated for each location and in accordance with approved shop drawing.
 - a. For steel pipe posts base mounted and set in concrete: Anchor posts in concrete by means of pipe sleeves set and anchored into concrete.
 - 1) Provide sleeves for core drill installation of galvanized steel pipe, not less than 9" long, and having an inside diameter not less than 1/2" greater than outside diameter of the inserted pipe. Provide steel plate closure secured to bottom of sleeve and of width and length not less than 1" greater than outside diameter of sleeve.
 - 2) After posts have been inserted into sleeves, fill annular space between post and sleeve solid with non shrink, non-ferrous grout.
 - 3) Cover anchorage joint with a round steel flange welded to post with welds ground smooth. Posts shall be set plumb within 1/8" vertical tolerance for full post height.
6. Longitudinal members shall be parallel with each other and with floor surface or shape of stair to a tolerance of 1/8" in each 10'-0" length. Center line of members within each run of railing shall lie in the same vertical plane.
 - a. Posts and other vertical components shall be set plumb within 1/8" from top to bottom of assembly.
 - b. Shop and field joints of connecting sections shall be hairline (1/32" or less).

E. Metal Saddles

1. General: Metal saddles shall be of profiles indicated on drawings, or otherwise approved by Owner's Representative in single piece, full wide of door jambs (unless indicated otherwise), shaped to fit jambs and other adjoining work.
 - a. Cut, drill and fit saddles as required to for door hardware.
 - b. Saddles for exterior doors shall have weather-stop rabbet (unless indicated otherwise).
2. Aluminum Saddles: Typical for Project conditions unless steel or other material indicated. Provide extruded aluminum with fluted top surface, 1/2" high maximum, 1/8" thick minimum. Caustic etch and clear anodized (0.07 mil thickness) finish, Aluminum Association finish designation C22-A31.

F. Water Heater Brackets: Fabricate of structural shapes as detailed. Coordinate with Division 15 to assure fit of water heater to be furnished.

G. Ornamental Fences and Gates:

1. Provide ornamental fence and gates as indicated and detailed on the drawings. Fabricate from hot or cold-rolled tubing, bars and shapes, welded at all joints and ground smooth. Hot dip galvanized after fabrication. All gate mounting hardware shall be furnished by gate manufacturer, padlocks shall be furnished under Section 08710, Finish Hardware.
2. Set posts into concrete footings as indicated or, if not indicated, into 3'-0" deep minimum footing to withstand strain of use.

H. Other Miscellaneous Items: Provide of materials, sizes, profiles, and conditions shown on Contract Drawings and as specified in Article 3.1 herein, for installation. Items include but are not limited to the following:

1. Pipe Guard Posts and Bollards: Fabricate of hot dip galvanized steel.

PART 3 – EXECUTION

3.1 INSTALLATION:

- A. General: Install work of this Section square, plumb, straight, true to line or radius, accurately fitted and located, with flush tight hairline joints (except as indicated otherwise or to allow for thermal movement), with provisions for other work, with provisions to allow for thermal movement, with provision to exclude water where exposed to the weather, and with attachment devices as required for secure and rigid installation.
- B. Attachments: Unless indicated otherwise, work to be built into concrete shall be anchored with shop-welded-on steel strap anchors, work to be attached to concrete or masonry shall be anchored by bolts into embedded metal inserts or expansion shields.
 1. Provide shims, slotted holes, or other means necessary for leveling, plumbing and other required adjustments.
 2. Steel attachment devices for exterior steel work and for galvanized steel work shall be galvanized.

3. Attachment devices for work exposed to view shall be concealed, unless indicated otherwise; all other attachment devices shall be located where least conspicuous. Where bolts or screws are permitted to work exposed to view, they shall be flat and countersunk, with projecting ends cut off flush with nuts or adjacent material.
 4. Do all necessary drilling, tapping, cutting or other preparation of surrounding construction in the field accurately and neatly. Provide for the attachment and support of work specified in this Section.
- C. Structural/Loading Criteria
1. Railings: All railings shall be fabricated and installed in accordance with design requirements specified herein.
 2. Install work of this Section to provide items with capabilities to safely sustain or withstand stresses and strains to which materials and assembled work will be subjected. Comply with Project loading and structural criteria and regulatory requirements.
- D. Field Welding: Comply with AWS Code for the procedures of manual shielded metal-arc welding, the appearance and quality of welds made, and the methods used in correcting welding work.
- E. Do not cut or abrade finishes which cannot be completely restored in the field. Return items with such finishes to the shop for required alterations, followed by complete refinishing or provide new units at Contractor's option.
- F. Field Painting: See Articles "Fabrication Standards" and references to "Prime Painting", and "Protective Coatings". Finish painting is specified in Section 09900, "Painting".
- G. Dissimilar Materials
1. Field Painting: See Articles "Fabrication Standards" and references to "Prime Painting", and "Protective Coatings". Finish painting is specified in Section 09900, "Painting".
 2. Aluminum to Other Metals: Isolate aluminum tubing from dissimilar metals by coating dissimilar metals with heavy-bodies bituminous paint or with one (1) coat zinc chromate primer and two (2) coats aluminum metal and masonry paint or by using a non-absorbent gasket.
 3. Aluminum to Treated Wood: Isolate aluminum from non-compatible preservative treated wood, and from all absorptive material subject to repeated wetting. Paint aluminum with two (2) coats of aluminum metal and masonry paint.
 4. Touch up: Recoat shop applied protective coatings if damaged.
- H. Apply bitumastic coating (bituminous paint) to steel at all concrete embedments, and extend coating one inch past top of concrete in a neat manner.

END OF SECTION

**SECTION 10 14 00
IDENTIFYING DEVICES**

PART 1 – GENERAL

1.01 REFERENCE

- A. Requirements in Addenda, Alternates, Conditions, and Division 01 collectively apply to this work.
- B. Code-mandated accessibility signage and room occupancy signage complying with CBC requirements and District standards.
- C. Project, building, name/number, school address, building directories complying with CBC requirements and District standards

1.02 DESCRIPTION

- A. Principal Work Items Are:
 - 1. Metal Signs:
 - a. Directional Signage
- B. Related Work Specified Elsewhere:
 - 1. Supporting Construction: Respective Sections.
- C. Related Work By District: N/A
- D. Description Of System:
 - 1. Signage is a two-component system consisting of a metal mounting base frame where required and removable/replaceable signage face.

1.03 SUBSTITUTIONS

- A. This specified signage system has been adopted by the Oxnard Union High School District. No Substitutions will be accepted for this specified system.

1.04 QUALITY ASSURANCE

- A. Requirements Of Regulatory Agencies; Codes:
 - 1. California Building Code (CBC) and Standards.
 - 2. Conform to Federal Americans With Disabilities Act (ADA), Section 3105(A)e and to Title-24, Division of the State Architect / Access Compliance Section "Accessibility" (Handicapped) Regulations.

1.05 SUBMITTALS

A. Samples; 2 Copies:

1. Submittals: Submit color and texture samples of all materials to be used for signs.
2. All submittals shall be made in accordance with Section 01 33 00.
3. Shop Drawings: Submit shop drawings showing sizes of signs and lettering, construction details of signs and anchoring details.

B. Product Data; 4 Copies: Mfr.'s standard brochures describing all items and materials; specific items for this work shall be indicated/highlighted.

C. Shop Drawings:

1. Signs; 4 Copies: All work.

1.06 JOB CONDITIONS

A. Sequencing, Scheduling: Verify type of supporting construction; provide suitable concealed attachment fasteners.

PART 2 - PRODUCTS

2.01 SIGNAGE; GENERAL

A. Signage shall conform to CBC Chapter 11 and requirements of ADA:

2.02 DIRECTIONAL SIGNAGE

Provide directional signs, from the Administration area, at all corners and stairs that provide classroom number direction. Signs shall be heavy duty, edge relived, black phenolic raised letter signs with white letters and an arrow and permanently attached to the walls with adhesive and screws. The sign shall be 3 inches by 6 inches and the information shall be in-scripted in three lines. Where additional lined are required, the sign shall be appropriately sized.

PART 3 - EXECUTION

3.01 PREPARATION

A. Layout: Accurately layout work to maintain proper lines, levels, and spacings.

3.02 INSTALLATION, PLASTIC PLAQUES & SIGNS

A. General: Typically for wall mounted signage, layout signage location and verify plumb and level. Mark and drill holes for plastic anchor inserts and install plastic anchors. Apply silicon sealant to back of sign surface and press to wall surface using caution not to extrude excess sealant onto adjacent finished wall surfaces. Install vandal-resistant screws through face of sign. (Verify sign insert can be removed from backing frame for changing "window" inserts.) Where having to mount sign to glazed window surface, press tape firmly to frame surface, and secure each plaque to glazing surface adjusting to plumb and level installation.

B. Mounting Location:

1. General:

- a. At heights and locations as prescribed by Code. Installation locations shall typically comply with ADAAG (4.30.6).
- b. As indicated on drawings.
- c. Multiple Signs: Where more than one sign occurs in one area, group signs vertically, one above the other with 3/4" space between signs, field verify with Architect before installation.

3.03 SCHEDULE; REQUIRED PLASTIC PLAQUES

A. General:

- 1. Directional Signage at each corner, staircase and decision point as necessitated by the path of travel from the Administration area to all Classrooms.

3.04 CLEANING & PROTECTION

- A. Cleaning: At completion of installation, clean surfaces in accordance with manufacturer's instructions.
- B. Protection: Protect installed signs from damage until acceptance by the owner.

END OF SECTION

**SECTION 31 10 00
SITE CLEARING**

PART 1 - GENERAL

1.01 SUMMARY

- A. Contractor shall furnish all labor, materials, services, testing, transportation and equipment necessary for the completion of all site clearing work as required and as indicated on drawings and specified herein. Work materials and equipment not indicated or specified which is necessary for the complete and proper operation of the work of this Section in accordance with the true intent and meaning of the contract documents shall be provided and incorporated at no additional cost to the Owner.
- B. Removal of surface debris; removal of paving and curbs; removal of trees, shrubs, and other plant life; topsoil excavation; and repair of damaged vegetation and/or irrigation systems/system components.
- C. Removal of concrete and bituminous surfacing where applicable.

1.02 RELATED SECTIONS

- A. Section 02 41 19 - Demolition.

1.03 REFERENCE STANDARDS

- A. The work provided herein shall conform to and be in accordance with the Contract Plans, General Conditions/Specifications and Special Provisions, as well as the Standard Specifications for Public Works Construction ("GREENBOOK"), 2018 Edition, adopted by the Southern California Chapter, American Public Works Association; herein referred to as the "Standard Specifications". In case of conflict between the "Standard Specifications", the General Conditions/Specifications and these Special Provisions, the General Conditions/Specifications and these Special Provisions shall have precedence.

1.04 REGULATORY REQUIREMENTS

- A. The Contractor shall obtain all necessary permits, licenses, or agreements required by any legally constituted agency, pay for all fees and give all necessary notices required for the construction of the work. The College of the Desert shall reimburse the contractor for all necessary permits or inspection fees by any legally constituted agency.
- B. Perform all work of this Section in strict accordance with applicable Government Codes and Regulations especially meeting all safety standards and requirements of CAL/OSHA, County of Los Angeles and the City of Los Angeles. Provide additional measures, added materials and devices as may be needed as directed by the District Representative at no added cost to the District.
- C. Comply strictly to Rule 1404, South Coast Air Quality Management District.
- D. Coordinate clearing Work with utility companies.

PART 2 - PRODUCTS

2.01 Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Section 02 41 19 – Demolition.

- A. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Verify that existing plant life designated to remain is tagged or identified.
- B. Identify a waste area for placing removed materials.

3.02 PROTECTION

- A. Protect existing structures and site improvements indicated to remain, from damage by approved methods and/or as authorized by the *District Representative*. Removal of all protections shall be when work of this Section is completed or when so authorized by the District Representative.
- B. Protect Existing Utilities indicated or made known to remain traversing the job-site and serving existing adjacent facilities.
- C. Protect Existing Trees and Shrubs indicated to remain by providing temporary surrounding fencing so located a sufficient distance away so that trees and shrubs will not be damaged by site-clearing operations.
 - 1. Protection Barrier: A protection barrier shall be installed around the shrubs or trees to be preserved. The barrier shall be constructed of a durable fencing material, such as plastic construction fencing, snow fence, or chain link. The barrier shall be placed at or beyond the drip line. "Drip line" as referred to herein means a line which may be drawn on the ground around the tree directly under its outermost branch tips and which identifies that location where rainwater tends to drip from the tree. Placement of barrier to be approved by District Representative (Grounds Supervisor). If barrier is placed inside the drip line, then 3/4 inch plywood must be placed over the root zone up to the drip line. The fencing shall be maintained in good repair throughout the duration of the project, and shall not be removed, relocated, or encroached upon without permission of the District Representative (Grounds Supervisor).
 - 2. Storage of Materials: There shall be NO storage of materials or supplies of any kind within the area of the protection barriers. Concrete, cement, asphalt materials, block, stone, sand and soil shall not be placed within the drip line of the tree(s).
 - 3. Fuel Storage: Fuel storage shall NOT be permitted within 150 feet of any tree to be preserved. Refueling, servicing and maintenance of equipment and machinery shall NOT be permitted within 150 feet of protected trees.
 - 4. Vehicles/equipment: NO parking or driving of vehicles or storage of equipment shall be permitted within the drip line of any tree to be preserved.

5. Debris and Waste Materials: Debris and waste from construction or other activities shall NOT be permitted within protected areas. Wash down of Concrete, cement or asphalt handling equipment, in particular shall NOT be permitted within 150 feet of protected areas.
6. Grade Changes: Grade changes can be particularly damaging to trees. Any grade changes should be approved by the District Representative (Grounds Supervisor) before construction begins and precautions taken to mitigate potential injuries.
7. Damages: Any damages or injuries to the preserved trees (including pruning or cutting of such trees not in conformity with the International Society of Arboricultural Pruning Guidelines and ANSI A300 Pruning Standards) shall be reported immediately to the District Representative (Grounds Supervisor). Severed roots shall be pruned cleanly to healthy tissue, using proper pruning tools. Broken branches/limbs shall be pruned according to International Society of Arboricultural Pruning Guidelines and ANSI A300 Pruning Standards. In the event that any damage, injury, improper pruning or cutting of a protected tree is deemed to be so substantial as to require its replacement (such determination to be made in the sole discretion of the District Representative), Contractor shall replace such tree with the same species and variety of tree, up to a box size of 48 inches, or if no such replacement is available, with a substitute species or variety as determined in the sole discretion of the District Representative. Any replacement tree shall be approved in advance by the District Representative. The value of the tree to be replaced shall be determined by a Certified Arborist selected by Contractor from the District's approved list of Registered Consulting Arborists. To the extent that the value of the replaced tree as determined by the Certified Arborist exceeds the cost of the replacement tree, Contractor shall be liable to District for such difference in value in addition to all costs associated with replacement of the damaged tree.
8. Removal of Existing Tree or Shrub: Prior to removing or cutting any trees designated for removal, the contractor shall coordinate with the District's Ground Supervisor. In the event that Contractor, a Subcontractor, Sub-Subcontractor, material supplier or anyone else performing the Work of the Contract willfully, negligently or mistakenly removes any tree or shrub not designated for removal, Contractor shall immediately report such removal to the District Representative (Grounds Supervisor). Contractor shall replace such tree with the same species and variety of tree, up to a box size of 48 inches, or if no such replacement is available, with a substitute species or variety as determined in the sole discretion of the District Representative. Any replacement tree shall be approved in advance by the District Representative. The value of the tree to be replaced shall be determined by a Certified Arborist selected by Contractor from the District's approved list of Registered Consulting Arborists. To the extent that the value of the replaced tree as determined by the Certified Arborist exceeds the cost of the replacement tree, Contractor shall be liable to District for such difference in value in addition to all costs associated with replacement of the damaged tree.
9. Unauthorized Tree Removal or Injury: Criminal Penalties: Reference is made to California Penal Code §384a which provides that any person who willfully or negligently cuts, destroys, mutilates or removes any tree or shrub or portion thereof growing on public land without a written permit from the owner of said public land is guilty of a misdemeanor, subject to a fine of up to \$1,000, imprisonment in county jail for up to 6 months, or both. Contractor is advised

that, in addition to all remedies provided herein and in the Contract Documents, the District shall cooperate with appropriate authorities in prosecuting and enforcing Penal Code §384a and other criminal sanctions as appropriate concerning trees and shrubs located on District property.

10. Preventive Measures: Before construction begins fertilization of the affected areas to be applied at a rate to be determined by the District Representative (Grounds Supervisor).
- D. Protect bench marks, survey control points, and existing structures from damage or displacement.
- E. Protection of Persons and Property (existing structures and site improvements):
 1. Provide barricades, warning signs at open depressions and holes on adjacent property and public accesses.
 2. Provide operating warning lights during hours from dusk to dawn each day or as otherwise required.
 3. Protect existing remaining structures, utilities, sidewalks, pavements other facilities from damage as caused by settlement, undermining, washout or other hazards created by site-clearing operations of this Section.
- F. Use means necessary to prevent dust from becoming a nuisance to the public, to neighbors and to others performing work on or near the job-site.
- G. Maintain access to the job-site at all times.

3.03 CLEARING

- A. Clear areas required for access to site and execution of Work.
- B. Remove all rubbish and debris existing and resulting from work operations of this Section as soon as possible, do not allow to pile up. Do not burn rubbish and debris on the job-site.
- C. Where active utility lines need to be capped or plugged, perform such work in accordance with requirements of the Utility Company.

3.04 REMOVAL

- A. Remove debris, rock, and extracted plant life from site.
- B. Excavate and remove associated plumbing piping.
- C. Prior to demolition work, the Contractor shall notify the District Representative to identify the existing items for salvage purposes. The materials identified for salvage shall be returned to the District in a timely manner agreed upon by the District Representative.

3.05 CONCRETE AND BITUMINOUS SURFACE REMOVAL

- A. Where noted on the construction drawings, break up and completely remove all existing concrete surfacing, curbs, gutters, walks and bituminous surfacing to limits indicated to be removed. All cutting shall be done to a neat and even line with proper tools or a concrete cutting saw. Minimum depth of cut shall be 1-1/2", unless otherwise specified.

Remove any concrete broken beyond the indicated limits to the nearest joint or score line and replace with new concrete to match the existing.

- B. Removed concrete and bituminous materials shall be disposed of off-site unless otherwise noted on the construction drawings. All such items to be removed shall be disposed of off the property in a legal manner.
- C. Bituminous pavement saw cutting shall conform to the provisions of Section 300-1.3.2 (a) of the Standard Specifications. The residue resulting from the saw cutting operations shall not be permitted to flow beyond the specific work location and shall be removed the same day.
- D. Removal of concrete curb / curb & gutter covered by this section shall include saw-cutting and removal of a twelve (12") inch wide section of the adjacent bituminous pavement.
- E. When saw cutting concrete curb / curb & gutter, the cuttings shall be continuously wet vacuumed to prevent the materials from entering catch basins, storm water conveyances, or waters of the State. Vacuumed cuttings shall be disposed of according to applicable regulations.
- F. Concrete curb and concrete curb and gutter shall be removed to the lines, grades and locations shown on the plans in accordance with Section 300-1.3.2 of the Standard Specifications.
- G. Concrete removal in sidewalk and driveway areas shall extend to existing score lines unless specifically indicated otherwise on the Plans or in the Project Special Provisions, or unless otherwise approved by the Engineer.
- H. Reinforcing or other steel may be encountered in portions of concrete to be removed. No additional compensation will be allowed for the removal of concrete containing reinforcing or other steel.
- I. In those areas where existing bituminous surfacing is removed to make way for new planting or lawn areas, remove soil 6" below existing exposed soil surface. Removed soil may be used only as fill under buildings or other areas to be paved, only if approved by the District Inspector. Legally dispose of off site, if material is not approved as fill material.

3.06 REPAIRS

- A. During demolition and construction, ensure that trees, shrubs and other plant material and vegetation are protected inside and outside of the work zone and that the vegetation is being watered, maintaining the proper moisture content according to the season. Failed vegetation, including sod, due to lack of water, and/or plant material destroyed during construction period are to be replaced to equal or better size and condition at no additional cost to the District.
- B. If the irrigation system is damaged or modified during construction, it shall be repaired to the District's standards, and shall be in equal or better condition than prior to damage or modification. All repairs shall be, inspected and approved by the District Representative (Grounds Supervisor) prior to backfilling or covering of said repairs. The District representative requires forty-eight hours prior notice, when contractor requests inspection of completed repairs. All repairs shall be made so as to ensure proper operation prior to the close of the contract at no additional cost to the District.

- C. Controller Wires: If damaged, cut or removed, repair by splicing, soldering and silicone sealing. To ensure proper operation, reconnect the wires to the valve to correspond with the map on the controller to the correct station.
- D. Hydraulic Tubes: If damaged/cut or removed, repair by replacing the tubing using equal or better material.
- E. Valves: If damaged, repair/replace with equal or better material. All valves are to be flushed/cleaned thoroughly.
- F. Mainlines: If damaged, repair/replace with equal or better material. All lines are to be flushed/cleaned thoroughly.
- G. Lateral Lines: If damaged, repair/replace with equal or better material. All lines are to be flushed/cleaned thoroughly.
- H. Irrigation Heads: If damaged, repair/replace with equal or better material. All heads are to be flushed and filters cleaned thoroughly.
- I. Controllers: If damaged repair/replace with equal or better material.
- J. Backflow Prevention Devices: If damaged, repair/replace with equal or better material.
- K. Gate/Ball/Quick Coupler Valves: If damaged repair/replace with equal or better material.
- L. Valve Boxes: If damaged, repair/replace with equal or better material. Concrete boxes and concrete lids with the appropriate markings for identification shall be used. The top of the box shall be buried below finish grade, equal to existing depth or deeper. The top of the valve stems shall be 6" below the underside of the top of the box.
- M. Construction in grass areas: Sod shall be removed by sod cutting at a soil depth of 2", stored on site, and watered on a daily basis. Upon completion of work, stored sod shall be reinstalled over the areas disrupted due to construction. An option may be to bypass cutting the sod, however at the completion of the project, finish grading and installation of new Hybrid Bermuda GN -1 sod over the areas disrupted by construction shall be required.

3.07 EXCESS MATERIALS DISPOSAL

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off Owner's property.

3.08 SITE CLEANUP

- A. Cleanup of branches, limbs, logs, or any other debris resulting from any operations shall be promptly and properly accomplished. The work area shall be kept safe at all times until all operations are completed. Under no circumstances shall the accumulation of brush, limbs, logs, or other debris be allowed in such a manner as to result in a hazard to the public. All debris shall be cleaned up each day before the work crew leaves the site, unless permission is given by the Owner to do otherwise. All lawn areas shall be raked, all streets and sidewalks shall be swept, and all brush, branches, rocks or other debris shall be removed from the site. Areas are to be left in a condition equal to or better than that which existed prior to the commencement of operations.

END OF SECTION

**SECTION 31 20 00
EARTHWORK**

PART 1 - GENERAL

1.01 SUMMARY

- A. The work of this section shall include excavation, unclassified cut, unclassified fill, removing existing unsatisfactory material, preparing areas to be filled, spreading and compacting of fill in the areas to be filled, and all other work necessary to complete the grading of the site. It shall be the Contractor's responsibility to place, spread, moisten or dry, and compact the fill in strict accordance with these specifications to the lines and grades indicated on project plans or as directed in writing by the Geotechnical Engineer. Included with this Work are the following:
1. General exterior grading, cutting and filling, including grading for building area, paving, planting areas, banks and hillsides.
 2. Excavating, filling, backfilling, and compacting for Project site pavement, planting areas, buildings, and other structures.
 3. Subbase course for walks and pavements.
 4. Subsurface drainage backfill for walls and trenches.
 5. Excavating and backfilling trenches within buildings lines.
 6. Excavating and backfilling for underground mechanical and electrical utilities and appurtenances.
 7. Shoring plan guidelines.
- B. Related Sections: The following Sections contain requirements that relate to this Section.
1. Section 32 13 13 - Site Concrete.
 2. Section 32 13 16 – Decorative Concrete Paving.

1.02 DEFINITIONS

- A. Excavation consists of the removal of material encountered to subgrade elevations and the reuse or disposal of materials removed.
- B. Subgrade: The uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.
- C. Borrow: Soil material obtained off site when sufficient approved soil material is not available from excavations.
- D. Base Course: The layer placed between the subgrade and surface pavement in a paving system.
- E. Drainage Fill: Course of washed granular material supporting slab on grade placed to cut off upward capillary flow of pore water.

- F. Permeable Backfill: Provide permeable backfill material behind retaining structures consisting of gravel, crushed gravel, crushed rock, natural sands, manufactured sand, or combinations.
- G. Unauthorized excavation consists of removing materials beyond indicated subgrade elevations or dimensions without direction by the Architect. Unauthorized excavation, as well as remedial work directed by the Architect, shall be at the Contractor's expense.
- H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man made stationary features constructed above or below ground surface.
- I. Utilities include underground pipes, conduits, ducts, and cables, as well as underground services within building lines.

1.03 SUBMITTALS TO CONSTRUCTION MANAGER

- A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for the following:
 - 1. Each type of plastic warning tape.
 - 2. Filter fabric.
- C. Samples of the following:
 - 1. 20 lb sample, sealed in air tight container, of proposed drainage fill materials.
 - 2. 12 by 12 inch sample of filter fabric.
- D. Test Reports: In addition to test reports required under field quality control, submit the following:
 - 1. One optimum moisture-maximum density curve for each soil sample.
 - 2. Laboratory analysis of each soil material proposed for fill or backfill from borrow sources.
- E. Excavation support & protection (shoring) shop drawings for informational purposes: Prepared by or under the supervision of a qualified professional engineer for excavation support and protection systems.

1.04 QUALITY ASSURANCE

- A. Codes and Standards:
 - 1. 2013 California Building Code, Title 24, Part 2, Volume 2 of 2, Appendix J, Grading.
 - 2. ASTM D422 - Method for Particle Size Analysis of Soils
 - 3. ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.

4. ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54 kg) and 18-inch (457-mm) Drop.
 5. ASTM D2216 - Method for Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil Aggregate Mixtures.
 6. ASTM D2922 - Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depths).
 7. ASTM D3017 - Test Method for Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depths).
 8. ASTM D4318 - Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
 9. AASHTO T217 - Determination of Moisture in Soils by Means of a Calcium Carbide Gas Pressure Meter.
 10. ASTM D4829 - Expansion Index Test.
- B. For off-site work, conform to all requirements of City of Pasadena and any other agencies having jurisdiction. Coordinate and obtain all required permits and inspections.
 - C. The work provided herein shall conform to and be in accordance with the Contract Plans, General Conditions/Specifications and Special Provisions, as well as the Standard Specifications for Public Works Construction ("GREENBOOK"), 2009 Edition, adopted by the Southern California Chapter, American Public Works Association; herein referred to as the "Standard Specifications". In case of conflict between the "Standard Specifications", the General Conditions/Specifications and these Special Provisions, the General Conditions/Specifications and these Special Provisions shall have precedence.
 - D. Comply with all requirements of permit for export of soil from site. Permit is to be obtained and paid for by Contractor. Furnish copies of all permits and licenses required by the City of Pasadena to Owner's representative.
 - E. Professional Observation: A soils engineer will be retained by the Owner for purposes of inspection, testing and approval of all work under this section. Perform work of this Section under inspection and approval of the soils engineer. Give soils engineer not less than 48 hours advance notice of readiness for inspection.
 - F. The soils engineer will have the authority over all filling, grading, and compaction operations, including interruption of work if deemed necessary due to improper work
 - G. Pre-Grading Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings."
 1. Before commencing earthwork operations, meet with representatives of the governing authorities, Owner, Architect, consultants, Geotechnical Engineer, independent testing agency, and other concerned entities. Review earthwork procedures and responsibilities including testing and inspection procedures and requirements. Notify participants at least 3 working days prior to convening conference. Record discussions and agreements and furnish a copy to each participant.

1.05 CONSTRUCTION MONITORING

- A. All earthwork and foundation construction should be monitored by a qualified engineer/technician under the supervision of a Geotechnical Engineer, including;
 - 1. Observation of all site preparations;
 - 2. Observation of shoring installation, if needed;
 - 3. Observation of all site excavations;
 - 4. Test and approval of all import soil;
 - 5. Observation of placement of all compacted fills and backfills;
 - 6. Observation of all surface and subsurface drainage systems;
 - 7. Observation of all foundation and pile excavations;
 - 8. Observation of subgrade preparation for paved and building areas.
- B. The Geotechnical Engineer of Record should be notified at least three (3) days in advance of the start of construction. A joint meeting between the Contractor and Geotechnical Engineer is recommended prior to the start of construction to discuss specific procedures and scheduling. The Geotechnical Engineer should be present to observe the soil conditions encountered during construction, to evaluate the applicability of the recommendations presented in the Soils Report to the soil conditions encountered, and to recommend appropriate changes in design or construction if conditions differ from those described herein. The Geotechnical Engineer of Record should inspect and approval all imported backfill material prior to its placement as backfill, approve the subgrade beneath all fills, fill placement and bottom of all foundation excavations before concrete or steel is placed.
- C. The Geotechnical Engineer shall submit compaction reports to the Construction Manager and the Civil Engineer at the completion of the work, including test results and plot plans indicating the locations from which the tested samples of fill were taken. The Geotechnical Engineer shall keep the Construction Manager informed on the progress of the grading work.

1.06 IMPORT AND EXPORT OF EARTH MATERIALS

- A. Fees: Pay as required by government authority having jurisdiction over the area.
- B. Bonds: Post as required by government authority having jurisdiction over the area.
- C. Hauling Routes and Restrictions: Comply with requirements of authorities having jurisdiction over the area.

1.07 TRUCK HAUL ROUTE

- A. A proposed truck haul route is to be submitted to the City of Pasadena Public Works Department for review and approval. Upon approval, an approved copy shall be returned to the Contractor. The Contractor shall post an approved copy on the job site. All trucks working that project shall also carry a copy. If a truck(s) is found not to be carrying an approved copy, the Contractor shall be subject to a Notice of Noncompliance (stop work order)

- B. All trucks must cover their dirt with an acceptable tarp during transport for dust containment. Provisions for street sweeping and watering will also be required unless an active wheel washing facility proves that they are un-necessary to the satisfaction of the Engineer.
- C. All truck haul routes, as approved, are good only for the project time period, and trucks shall have to comply with the approved route only. If during the progress of the project an alternate route is needed, the Contractor shall submit a new plan. The haul route application shall contain the following information:
 - 1. Map showing the proposed route
 - 2. Project name
 - 3. Grading Contractor's name, address and phone number
 - 4. Type of material being hauled
 - 5. Encroachment or construction permit number

1.08 DIG ALERT NOTIFICATION

- A. Before any excavation in or near the public right-of-way, the Contractor must contact the Underground Service Alert of Southern California (Dig Alert) at 811 for information on buried utilities and pipelines.
- B. Delineation of the proposed excavation site is mandatory. Mark the area to be excavated with water soluble or chalk based white paint on paved surfaces or with other suitable markings such as flags or stakes on unpaved areas.
- C. Call at least Two (2) full working days prior to digging.
- D. If the members (utility companies) have facilities within the work area, they will mark them prior to the start of your excavation and if not, they will let you know there is no conflict. A different color is used for each utility type (electricity is marked in red, gas in yellow, water in blue, sewer in green, telephone and cable TV in orange).
- E. The Law requires you to hand expose to the point of no conflict 24" (inches) on either side of the underground facility, so you know its exact location before using power equipment.
- F. If caught digging without a Dig Alert ticket you can be fined as much as \$50,000 per California government code 4216.

1.09 PROJECT CONDITIONS

- A. Data: Maps, boring logs, geotechnical and foundation investigation reports, and like reference data, not included in Contract Documents but made available to Contractor by Architect or Owner are for information only, and the Architect and Owner assume no responsibility for any conclusions Contractor may draw from such information. Should questions or issues arise, contact Architect or Owner for clarification.
- B. Contractor shall determine existing conditions under which the Contractor will operate in performing the Work
- C. A geotechnical investigation report prepared by Hydrologue, Inc. (Project No. 4027-00), dated October 25, 2011 has been prepared. Prior to bidding or performing the work of

this project, contractor shall obtain a copy of this report, and shall thoroughly familiarize himself/herself with its contents. Any information obtained from such report, or any information given on any drawings as to subsurface soil conditions or to elevations of existing elevations or elevations of underlying rock, is approximate only, is not guaranteed, and does not form a part of the contract, unless specifically referenced in the Contract Documents. The Contractor is required to make a visual inspection of the Project Premises and must (and is permitted to) make whatever tests the Contractor deems appropriate to determine and assess the underground condition of the soil. No claims for allowances or damages because of the Contractor's negligence or failure in acquainting itself with the conditions of the Project Premises as described herein will be recognized by the District.

- D. WARNING: DISTRICT DOES NOT WARRANT THE SOILS AT THE PROJECT SITE. SOILS INVESTIGATION REPORT IS PROVIDED FOR CONTRACTORS INFORMATION ONLY. CONTRACTOR HAS CONDUCTED AN INDEPENDENT INVESTIGATION OF THE PROJECT SITE AND THE SOILS CONDITIONS OF THE SITE. DISTRICT DOES NOT WARRANT THE SOILS CONDITIONS OF THE SITE AND CONTRACTOR IS FULLY RESPONSIBLE TO ASCERTAIN SITE CONDITIONS FOR THE PURPOSES OF DETERMINING CONSTRUCTION MEANS AND METHODS PRIOR TO COMMENCING CONSTRUCTION. THE SOILS INVESTIGATION REPORT IS NOT A CONTRACT DOCUMENT.
- E. Information on Drawings does not constitute a guarantee of accuracy or uniformity of soil conditions over the Project site.
- F. Existing utilities: Locate existing underground utilities in all areas of work prior to excavation or commencement of work. If utilities are to remain in place provide adequate means of protection during earthwork operations.
 - 1. Should uncharted, or incorrectly charted piping or other utilities be encountered during excavation, consult Utility Owner immediately for direction. Cooperate with Owner and Utility companies in keeping respective services and facilities in operation. Repair damaged utilities to the satisfaction of Utility Company.
 - 2. Do not interrupt existing utilities serving facilities occupied or used by Owner, or others, except when permitted in writing by Owner's Representative, and then only after acceptable temporary services have been provided.
 - 3. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shut off of services if lines are active.
- G. Noise and Dust Abatement: Exercise all reasonable and necessary means to abate dust, dirt rising and undue noise. Perform necessary sprinkling and wetting of construction site to allay dust as required by applicable codes and ordinances.
- H. Water for Grading: Contractor shall obtain and pay for all water required for his grading operation. This may include, but is not limited to, payment of deposits to utility for construction meter, and payment of all monthly service and water charges. Construction meter shall be in place throughout construction period unless alternative arrangements are made with the Water Department to provide construction water for all purposes. Contractor shall be aware of water moratoriums and restrictions, and shall immediately advise Owner of effects on construction schedules.

- I. Existing Conditions: Prior to commencing work at site, verify agreement of existing conditions with indicated conditions. Notify Owner's Representative in writing of discrepancies found. Start of work without notification constitutes acceptance of conditions, without cause for extra compensation.
- J. Field obstructions, grade differences or differences in dimensions may exist that might not have been considered or observed during design of this project. Contractor shall promptly notify the Engineer and the Agency having jurisdiction by telephone and in writing upon discovery of and before disturbing, any physical conditions differing from those represented by approved plans and specifications. In the event this notification is not performed, the Contractor shall assume full responsibility for necessary revisions.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

- A. General: All soils materials to be used throughout the site shall be approved for use by the Geotechnical testing engineer. Provide approved borrow soil materials from off site when sufficient approved soil materials are not available from excavations.
- B. No earthwork analysis has been completed with respect to the volumes of soils to be excavated, placed, or imported in order to provide the finished grades shown on the plans. The Contractor is solely responsible for verifying the earthwork quantities necessary to complete the project.
- C. For earthwork volume estimating purposes, an average shrinkage volume of 10 to 15 percent and subsidence of 0.1 to 0.2 foot may be assumed for the surficial soils. See page 13 of the project Geotechnical Investigation Report.
- D. Satisfactory Soil Materials: Soils approved by the testing geotechnical engineer and free of rock or gravel larger than 3 inches in any dimension, debris, waste, vegetation and other deleterious matter and as approved by the Geotechnical Engineer. Rocks or hard lumps larger than approximately 3 inches in diameter should be broken into smaller pieces or should be removed from the site. It is anticipated that most of the on-site soils may be reusable as engineered fill after any vegetation, construction debris, oversized material and deleterious material is removed from the site.
- E. Borrow / Imported Fill Material: Soil excavated from site or imported conforming to requirements for fill material.
 - 1. Materials for the fill shall be free from vegetable matter and other deleterious substances, shall not contain rocks or lumps of a greater dimension than is recommended by the geotechnical consultant, and shall be approved by the geotechnical consultant.
 - 2. Imported materials should have a Plasticity Index (PI) not less than 12 nor greater than 15, as determined by ASTM D 4318; and expansion index not exceeding 35, as determined by ASTM D 4829; and have 100% passing a two inch sieve, 60% to 100% passing a #4 sieve, no more than 20% passing a #200 sieve.
- F. Backfill & Native Fill Materials: The on-site soils may be reused as compacted engineered fill provided they comply to the requirements of "Satisfactory Soil Materials", as described above.

- G. Base Course Material For Use Under Asphalt Pavement: Crushed base material shall consist of materials that meet the provisions listed below.
1. Crushed Aggregate Base (CAB) per Section 200-2.2, 3/4" maximum of the Standard Specifications for Public Works Construction (Green Book).
 2. Crushed aggregate base (CAB) shall consist of native rock without naturally occurring asbestos or recycled materials. The Contractor shall submit written documentation, which identifies the source, volume, and proposed transport date of the material for review and approval by the Owner's Construction Manager prior to importing the material. A statement on company letterhead from the source, stamped by either a California Professional Geologist or Engineer, which states that the subject materials are native rock, do not contain any recycled materials and that the source does not mine ultramafic materials, a source of natural occurring asbestos shall be included in the submittal to Owner's Construction Manager.
- H. Engineered Fill: Satisfactory Soil Materials / Borrow Fill Material, as described above, placed in lifts no greater than 3 inches thick (loose measurements) unless approved by the Geotechnical Engineer, and compacted to a minimum of 95% in accordance with ASM D1557. See page 12 of the approved soils report for this project.
- I. Bedding Material for Trenches:
1. Bedding sand shall be as defined by Standard Specifications, Section 200-1.5, and shall be free of expansive material and organic matter. Bedding material for utility lines outside the property lines shall be as required by the agency having jurisdiction. On-site soils are not considered suitable for bedding or shading of utilities.
 2. Sand, gravel, crushed aggregate or native free-draining granular material providing a sand equivalent of at least 30 or a coefficient of permeability greater than 1.4 inches per hour. All of the sand bedding shall be compacted to 90 percent of maximum density as indicated in the Contract Documents by mechanical means. Flooding and jetting shall not be permitted without prior written approval from the Geotechnical Engineer. Pipe bedding material shall be placed in horizontal layers not exceeding (8) eight inches.
- J. Backfill Material for Trenches:
1. The on-site soils may be used for backfilling utility trenches from 6 inches above the top of pipe to the surface, provided the material is free of organic matter and deleterious substances. Any soft and/or loose materials or fill encountered at pipe invert should be removed and replaced with properly compacted fill or adequate bedding material. Also, rocks larger than 6 inches and boulders should not be used as backfill.
 2. Where Construction Documents indicate areas of backfill requiring cement-sand slurry, the material requirements in Section 32 13 13: Site Concrete shall be followed.
- K. Gravel Fill Material: Shall be from an approved source, having the following gradation: 90-100% passing a 3/4" sieve, 0% to 10% passing a No. 4 sieve, and 0% to 3% passing a No. 100 sieve.

- L. Filter Fabric: Manufacturer's standard nonwoven geotextile fabric of polypropylene geotextiles, "Mirafi 140N" or approved equal
 - 1. Provide filter fabrics that meet or exceed the listed minimum physical properties determined according to ASTM D 4759 and the referenced standard test method in parentheses:
 - a. Grab Tensile Strength (ASTM D 4632): 100 lb.
 - b. Apparent Opening Size (ASTM D 4751): #70 U.S. Standard sieve.
 - c. Permeability (ASTM D 4491): 135 gallons per minute per sq. ft.

2.02 ACCESSORIES

- A. Detectable Warning Tape: Acid and alkali-resistant polyethylene film metallic warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick minimum, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep.
 - 1. Tape Colors: Provide tape colors to utilities as follows:
 - a. Red: Electric.
 - b. Yellow: Gas, oil, steam, and dangerous materials.
 - c. Orange: Telephone and other communications.
 - d. Blue: Water systems, with "Caution: Water Line Below."
 - e. Green: Sewer systems, with "Caution: Sewer Line Below."
 - f. Green: Storm systems, with "Caution; Storm Drain Line Below."
- B. Filter Fabric: Manufacturer's standard nonwoven geotextile fabric of polypropylene geotextiles, "Mirafi 140N" or approved equal.
 - 1. Provide filter fabrics that meet or exceed the listed minimum physical properties determined according to ASTM D 4759 and the referenced standard test method in parentheses:
 - a. Grab Tensile Strength (ASTM D 4632): 100 lb.
 - b. Apparent Opening Size (ASTM D 4751): #70 U.S. Standard sieve.
 - c. Permeability (ASTM D 4491): 135 gallons per minute per sq. ft.

2.03 EXCAVATION SUPPORT & PROTECTION – SHORING PLAN

- A. The CONTRACTOR shall have at the Worksite, copies or suitable extracts of: Construction Safety Orders, Tunnel Safety Orders and General Industry Safety Orders issued by the State Division of Industrial Safety. The CONTRACTOR shall comply with provisions of these and all other applicable laws, ordinances, and regulations.
- B. Before excavating any trench 1.5m (5 feet) or more in depth, the CONTRACTOR shall submit a detailed plan to the Owner showing the design of shoring, bracing, sloping, or

other revisions to be made for the Workers' protection from the hazard of caving ground during the excavation of such trench. If the plan varies from the shoring system standards, the plan shall be prepared by a registered Civil Engineer. No excavation shall start until the OWNER has accepted the plan and the CONTRACTOR has obtained a permit from the State Division of Industrial Safety. A copy of the permit shall be submitted to the OWNER.

- C. The INSPECTOR will provide a competent person trench/excavation certification form to the CONTRACTOR. It shall be completely filled out before any worker has access to trench or excavation and returned to the INSPECTOR before the end of the first working day. The CONTRACTOR shall certify by this form the name of the competent person administering the Work, the soil classification, and the type of excavation protective system provided and/or installed.
- D. The CONTRACTOR shall completely fence all excavations to provided protection against anyone falling into the excavation and to the satisfaction of the INSPECTOR. The fencing shall be in place at all times except when workers are present and actual construction operations are in progress.
- E. The fencing material shall be chain link fabric or welded wire fabric (6x6-W9xW9 minimum) and 1.5 m (5 feet) high, constructed according to one of the following:
 - 1. Tensioned fencing material and have top and bottom tension wires securely fastened to driven steel posts or other equally rigid elements at a maximum spacing of 3.6m (12 feet); or
 - 2. Untensioned fencing materials securely fastened to extended trench shoring elements at a maximum spacing of 2.4m (8 feet) and fastened to continuous top and bottom rails constructed of nominal 50mm x 100mm (2 in x 4 in) lumber or equally rigid material. Framed panels with suitable supporting elements fastened together to form a continuous fence may also be used.
- F. Payment for performing all work necessary to provide safety measures shall be included in the prices bid for other items of work except where separate bid items for excavation safety are provided, or required by law.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Protect adjacent property and existing improvements and structures as necessary to prevent undermining, caving of cuts, and miscellaneous damage.
- B. Provide cribbing, sheeting, and shoring necessary to safely retain the earth banks and protect excavations and adjoining grades from caving and other damage resulting from excavating together with suitable forms of protection against bodily injury to personnel employed on the work and the general public. Be responsible for the design, installation, and maintenance of required cribbing and shoring and shall meet the approval of the State Division of Industrial Safety and local governing agencies requirements.
- C. Utility lines and structures shown shall be protected and treated as indicated. Where work not shown is encountered, report it to the Architect before proceeding with excavation. Encase active lines in sleeves where they pass through concrete; remove

inactive lines as directed, and plug the remaining ends. Bear the costs for repairs to damaged or broken utilities and any damages related thereto.

- D. Protect existing improvements and adjacent properties from storm damage and flood hazard originating on this project until final acceptance by the Owner. Prevent silt run-off from the limits of work in accordance with governmental requirements.
- E. An 8 foot high, temporary chain link fence with visual screen and gates, (pair 26' wide, minimum) shall be erected prior to any grading operations at the construction limits perimeter. Coordinate the exact location with Architect and District.

3.02 DEWATERING

- A. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area. Any water entering an excavation shall be immediately pumped out and the exposed excavation allowed to dry.
- B. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.

3.03 GRADE STAKES

- A. The Contractor's Surveyor will set grade stakes. The Surveyor shall be a California registered land surveyor or licensed Civil Engineer. The Surveyor shall be hired and paid by the Contractor, and shall be subject to the approval of the Owner. Contractor shall notify the Owner at least 48 hours before staking is to be started. The Owner will determine if work is ready for staking.
- B. All work shall conform to the lines, elevations, and grades shown on the Construction Plans. Three consecutive points set on the same slope shall be used together so that any variation from a straight grade can be detected. Any such variation shall be reported to the Engineer. In the absence of such report, the Contractor shall be responsible for any error in the grade of the finished work.
- C. Protect and maintain stakes in place until their removal is approved by the Owner. Grade or location stakes lost or disturbed by Contractor, shall be reset by the Surveyor at the expense of Contractor.
- D. Grades for underground conduits will be set at the surface of the ground. The Contractor shall transfer them to the bottom of the trench.

3.04 EXCAVATION

- A. All undocumented fill soil encountered during site grading in the areas of building and other improvements, as well as any native soils disturbed during demolition and clearing operations, should be excavated full depth under the observation and confirmation by the Geotechnical Consultant. Lateral extent of overexcavation beyond building perimeter, where possible, should be to a minimum distance equal to the depth of undocumented fill/disturbed soil encountered or five (5) feet, whichever is greater.
- B. It is recommended that the existing on-site soil within the footprint of the building pad be overexcavated and removed uniformly to a minimum depth of three (3) feet below existing or finish grade, or five (5) feet below the bottom of the lowest footing, whichever is lower, and replaced with properly compacted fill such that the building foundations and slabs are supported on a re-engineered, compacted general fill layer.

- C. In preparation for grading, the construction areas should be cleared of surface vegetation, concrete, pavement and any loose surficial soils. Any unsuitable material encountered should be properly disposed of and not incorporated into any new fill.
- D. Excavate to the depths, lines and grades indicated on the approved Grading Plan. Excavate sufficiently over-size to permit installation and removal of concrete forms and other required work. Should soil of inadequate density and bearing capability be encountered at the elevations indicated on the drawings, or where new fill is to be placed upon existing loose fill material exposed by excavation, the excavation shall be carried to the depth required to attain soil of bearing quality as determined by the Geotechnical Engineer.
- E. A California Licensed Surveyor (LS) must provide grade stakes and elevations for the Geotechnical Engineer to verify that the over-excavation depths, shown on the construction drawings for asphalt concrete pavement and concrete pavement structural sections, have been achieved prior to re-compaction.
- F. Should footing excavations exceed required dimensions or should sloughing occur, fill such extra space with concrete at no additional cost to the contract. If unsuitable material is found at the indicated depths, immediately notify the Inspector.
- G. Notify the Inspector 48 hours before foundation excavations are ready for inspection.
- H. The bottoms of footings shall be free of loose material, debris, and water before concrete is placed.
- I. Cut banks shall be neatly trimmed to the required finish surface as the cut progresses, or the Contractor shall have the option of leaving the cuts full and finish grading by mechanical equipment which shall produce the finish surfaces as shown on the Drawings.
- J. Surplus earth not needed for filling and grading shall be disposed of in a legal manner off the site.
- K. All applicable requirements of the California Construction and General Industry Safety Orders, the Occupational Safety and Health Act of 1970, and the Construction Safety Act should also be followed.

3.05 HAZARDOUS MATERIALS

- A. All import fill material shall be characterized, handled, and documented in accordance with applicable US EPA and State of California hazardous waste and hazardous materials regulations.
- B. "Contaminated" shall mean any soil or geotechnical material at a concentration, which would require disposal at a regulated facility (i.e., California hazardous or RCRA hazardous).
- C. Owner's Authorized Representative (OAR) must be notified at least 72 hours prior to the disposal of any hazardous waste or hazardous material. No material disposal or reuse can take place without prior written approval of the OAR.
- D. Replacement of earth material, that has been removed due to hazardous waste reasons, shall be placed back to meet the requirements of Section 2.1, F – Engineered Fill.

3.06 EXCAVATION FOR ASPHALT PAVING AND SITEWORK CONCRETE

- A. Refer to Site Concrete Specification 32 13 13 section 3.01 requirements.
- B. Refer to Asphalt Paving Specification 32 12 16 section 3.2 requirements:
- C. The compacted surface shall be firm, hard and unyielding. The term "firm, hard and unyielding" as used in the Standard Specifications Section 301-1.3 shall mean that when the heaviest construction and hauling equipment used on the project drives over the subgrade, no permanent deformation shall occur either before or during pavement construction. On areas where the underlying material appears to be wet or soft, or where it deflects under wheel loads, the Contractor shall employ excavation and work techniques which do not worsen the subgrade condition.
- D. The above subgrade preparation recommendations are based on the assumption that soils encountered during field exploration are representative of soils throughout the site. However, there can be unforeseen and unanticipated variations in soils between points of subsurface exploration. For this reason, the actual scarification and over-excavation depths will have to be determined on the basis of in-grading observations and testing performed by representatives of the Owner's geotechnical consultant.
- E. Whenever batch trucks or other paving equipment cause rutting of the subgrade or subbase in asphalt or concrete placement areas, inspectors shall immediately stop construction. Construction shall not be allowed to resume until distorted subgrade or subbase is repaired. Contractors and inspectors should locate by proof rolling, any questionable unstable areas in advance to avoid distortion under equipment. Wet, unstable areas must be dried out or replaced before starting placement of asphalt. Locating wet or soft areas in advance can be accomplished by testing finished subgrade or subbase with a loaded truck. Construction of asphalt or concrete pavement should not proceed unless testing gives a reasonable indication that distortions will not occur during construction of overlying pavement. When repair, aeration, and re-compaction are required to correct damage from Contractor's operation, all necessary repair will be done at Contractor's expense. However, if the Engineer determines that additional depth of aeration and re-compaction are needed, that should be paid by change order.
- F. A California Licensed Surveyor (LS) must provide grade stakes and elevations for the Geotechnical Engineer to verify that the over-excavation depths, shown on the construction drawings for asphalt concrete pavement and sitework concrete structural sections, have been achieved prior to re-compaction.
- G. Subgrade tolerances: Subgrade for pavement shall not vary more than 0.02' from the specified grade and cross section established by the Engineer. Subgrade for base material shall not vary more than 0.04' from the specified grade and cross section. Variations within the above specified tolerances shall be compensated so that the average grade and cross section specified are met.

3.07 EXCAVATION, BACKFILL & COMPACTION FOR UTILITIES

- A. Field conditions may require deviations from information indicated on Drawings. Such changes in work shall be covered by a Change Order, indicating an increase or decrease in the Contract sum.
- B. Before excavation, Contractor shall contact the "Underground Service Alert of Southern California" (USASC) for information on buried utilities and pipelines.

- C. When connections are to be made to any existing pipe, conduit, or other appurtenances, the actual elevation or position of which cannot be determined without excavation, the Contractor shall excavate for, and expose, the existing improvement before laying any pipe or conduit. The Engineer shall be given the opportunity to inspect the existing pipe or conduit before connection is made. Any adjustments in line or grade which may be necessary to accomplish the intent of the plans will be made, and the Contractor will be paid for any additional work resulting from such change in line or grade.
- D. Trenches, ditches, pits, sumps, and similar items which are outside the barricaded working area shall be barricaded to conform to Cal OSHA standards.
- E. Trenches over 5'-0" in depth shall conform to the Construction Safety Orders of the California Division of Industrial Safety, see Section 2.3 EXCAVATION SUPPORT & PROTECTION – SHORING PLAN.
- F. Safe and suitable ladders which project 2 feet above the top of the trench shall be provided for all trenches over 4 feet in depth. One ladder shall be provided for each 50 feet of open trench, or fraction thereof, and be so located that workers in the trench need not move more than 25 feet to a ladder.
- G. Where indicated and/or required to excavate in lawn areas, protect adjoining lawn areas outside of the Work area. Replace or install removed sod upon completion of backfill by installing sod level with adjacent lawns. If installation of removed sod fails, furnish sod and install to match existing lawns.
- H. All trenches should be backfilled with approved fill material compacted to relative compaction of not less than 90 percent of maximum density determined in accordance with ASTM D 1557. Backfill shall be placed in layers not exceeding 8" (inches) in thickness.
- I. Backfill over excavations to the required elevations with earth, gravel, sand, or concrete and compact as required. Provide excavations free from standing water by pumping, draining, or providing protection against water intrusion. Slope adjacent grades away from excavations to minimize entry of water.
- J. Do not excavate trenches parallel to footings closer than 18" from the face of the footing or below a plane having a downward slope of 2 horizontal to one vertical, from a line 9" above bottom of footings.
- K. If soft, spongy, unstable, or other unsuitable material is encountered upon which the bedding material or pipe is to be placed, this material shall be removed to a depth ordered by the Engineer and replaced with bedding material suitably densified. Additional bedding so ordered, over the amount required by the Plans or Specifications, will be paid for as provided in the Bid. If the necessity for such additional bedding material has been caused by an act of failure on the part of the Contractor or is required for control of groundwater, the Contractor shall bear the expense of the additional excavation and bedding.
- L. Unless indicated otherwise on the plans are within this specification, excavate trenches to the required depths for utilities, such as pipes, conduit and tanks, with minimum allowances of 6 inches at the bottom and 6 inches at the sides for bedding of unprotected piping or as required for concrete encasement of conduits as indicated on Drawings. Maximum allowances at the sides for trenching shall be 12 inches. Grade bottom of trenches to a uniform smooth surface. Remove loose soil from the excavation before installing sand bedding or concrete encasement.

- M. Where portions of existing structures, walks, paving, etc. must be removed or cut for pipe or conduit installation, replace the material with equal quality, finished to match adjacent work.
- N. Provide a minimum clear dimension of 6 inches from sides of wall excavation to outer surfaces of buried pipes or conduits installed in the same trench or outside surfaces of containers and/or tanks.
- O. DO NOT place backfill until the bedding and pipe work installed has been inspected, tested and approved by the Inspector. Remove excavated rocky material unsuitable for backfill from the site prior to final backfilling.
- P. Backfill shall be placed in layers not exceeding 8" (inches) in thickness and compacted to 95% for sand and silts and 90% for clayey soils, unless otherwise directed by the Geotechnical Engineer.
- Q. If materials excavated from the Project site are not permitted for trench backfill in paved areas or as specified in Contract Documents, backfill trenches with a one sack cement-sand slurry mix. Install backfill to an elevation of the existing undisturbed grade plus one inch.
- R. Bedding zone shall be defined as the area containing the material specified that is supporting, surrounding, and extending to 12" (inches) above the top of pipe. Compaction requirements in this area must meet 90%.
- S. Bedding material shall first be placed on a firm and unyielding subgrade so that the pipe is supported for the full length of the barrel. There shall be 6" (inch) minimum of bedding below the pipe barrel and 1" (inch) clearance below a projecting bell for sewer, storm drain and water pipe. The material in the bedding zone shall be placed and densified by mechanical compaction only.
- T. Mechanically compacted backfill shall comply with section 306-1.3.2 of the Standard Specifications for Public Works Construction.
- U. Concrete backfill trenches that carry below or pass under footings and that are excavated within 18 inches of footings. Place concrete to level of bottom of footings.
- V. Fill voids with approved backfill materials as shoring bracing and sheeting is removed.

3.08 INSPECTION & TESTING AT TRENCHES

- A. Pipe will be inspected in the field before and after laying. If any cause for rejection is discovered in a pipe after it has been laid, it shall be subject to rejection. Any corrective work shall be approved by the Engineer and shall be at NO cost to the Owner.
- B. The Inspector or Geotechnical Engineer will inspect all subgrades and excavations prior to placing bedding & backfill materials.
- C. DO NOT place backfill until the bedding and pipe work installed has been inspected, tested and approved by the Inspector. Remove excavated rocky material unsuitable for backfill from the site prior to final backfilling.
- D. Utility backfill compaction test shall be performed in accordance with ASTM D1557, method "C".

- E. Utility backfill in place density test per ASTM D 1556 (sand cone) or other test method as considered appropriate by the Geotechnical Engineer.
- F. Hydrostatic pressure tests shall be done only after backfill has been placed and final compaction has been achieved.

3.09 APPROVAL OF SUBGRADE

- A. Notify Geotechnical Engineer when excavations have reached required over-excavation subgrade.
- B. When Geotechnical Engineer determines that unforeseen unsatisfactory soil is present, continue work only after receiving direction from the Contracting Officer.
- C. Reconstruct subgrades damaged by rain, accumulated water or construction activities as directed by the Soils Engineer.

3.10 UNAUTHORIZED EXCAVATION

- A. Fill of unauthorized excavation below bottoms of foundations or wall footings will be engineered fill.
- B. Fill unauthorized excavations under other constructions as directed by the Soils Engineer.
- C. Where indicated widths of utility trenches are exceeded, provide stronger pipe, or special installation procedures, as required by the Geotechnical Engineer.

3.11 STORAGE OF SOIL MATERIALS

- A. After the site has been stripped of all debris, vegetation and organic materials, excavated on site soils may be reused as engineered fill provided they meet the satisfactory soils material conditions in Section 2.1, part B. High in-site moisture contents will require aeration prior to placement as engineered fill.
- B. Stockpile excavated materials acceptable for backfill and fill soil materials, including acceptable borrow materials. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees. Cover to prevent wind-blown dust.

3.12 PLACEMENT OF ENGINEERED FILL

- A. Preparation of the bottom of the excavation:
 - 1. Where structural foundations, slab on grade construction, asphalt pavement and concrete flatwork engineered fill is to be placed, the upper 6" (inches) of native soil must be scarified, moisture conditioned and re-compacted to a minimum of 90 percent of the maximum dry unit weight as determined by the ASTM Test Method D1557.
- B. Spreading and Compacting Fill Material:
 - 1. It is anticipated that most of the on-site soils may be reusable as engineered fill after any vegetation, construction debris, oversized material and deleterious material is removed from the site. Engineered fill should have no particles greater than 3 inches in diameter, be placed in lifts no greater than 8 inches thick

(loose measurements) and re-compacted to a minimum 95% of the maximum density obtainable by ASTM D1557.

2. After each layer has been placed, mixed, and spread evenly, it shall be thoroughly compacted by the Contractor to the specified density. Compaction shall be accomplished by sheepsfoot rollers; vibratory rollers; multiple-wheel, pneumatic-tired rollers; or other types of acceptable compacting equipment. Equipment shall be of such design that it will be able to compact the fill to the specified density. Compaction shall be continuous over the entire area, and the equipment shall make sufficient passes to obtain the desired density uniformly. Jetting, puddling and hydroconcolitation techniques shall not be used.
3. When backfilling and compacting behind retaining walls and flexible retaining structures, the Contractor shall use lightweight compaction equipment such as hand-operated equipment, shoring, or other means to avoid over-stressing structural walls. When using lightweight compaction equipment, the fill materials shall be spread in horizontal layers not greater than 6 inches thick, measured before compaction.

C. Compaction Testing:

1. The Geotechnical Engineer's representative shall observe the excavation, filling, and compacting operations and shall make density tests in the fill material so that he can state his opinion as to whether or not the fill was constructed in accordance with the specifications. If the surface is disturbed, the density tests shall be made in the compacted materials below the disturbed zone. When these tests indicate that the density or moisture content of any layer of fill or portion thereof does not meet the specified density or moisture content, the particular layer or portions shall be reworked until the specified density and moisture content have been obtained.
2. Sampling and testing of materials for determination of compliance with the specified compaction requirements will be conducted by the Geotechnical Engineer's representative at any location and time as the Owner may determine.
3. The Contractor shall be responsible for excavation of the test pits and for providing and installing any shoring, ladders, or other equipment necessary to protect the testing personnel. The Contractor shall also suspend operations as necessary and at no cost to the owner for the purpose of conducting such testing.
4. Test pits shall be excavated in the backfill by the Contractor as directed by the Engineer for the purpose of testing the backfill compaction. At the option of Engineer, density tests may be taken on a lift of compacted backfill immediately before placing the next lift.
5. Any settlement noted in backfill, fill, or in structures built over the backfill or fill within the one-year warranty period will be considered to be caused by improper compaction methods and shall be corrected at the Contractor's expense. Structures damaged by settlement shall be restored to their original condition by the Contractor at the Contractor's expense.
6. When initial compaction testing performed by the Engineer indicates the required density has not been obtained, the Contractor shall re-compact or replace the backfill as necessary to meet the specified minimum density.

7. The Contractor shall be responsible for rescheduling compaction testing with the Engineer and shall bear all costs for subsequent retesting in the areas of noncompliance. Costs associated with retesting and scheduling delays shall be the sole responsibility of the Contractor. The Engineer will deduct the costs for testing of materials and work found to be unacceptable, as determined by the tests performed by the Owner and the costs for testing of material sources identified by the Contractor which are not used for the work, from moneys due or to become due to the Contractor. The amount deducted will be determined by the Engineer.

3.13 BACKFILL - GENERAL

- A. Backfill excavations promptly, but not before completing the following:
 1. Acceptance of construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.
 2. Surveying locations of underground utilities for record documents.
 3. Testing, inspecting, and approval of underground utilities.
 4. Concrete formwork removal.
 5. Removal of trash and debris from excavation.
 6. Removal of temporary shoring and bracing, and sheeting.
 7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

3.14 GRADING

- A. Rough & Fine Grading: Rough grade area sufficiently high to require cutting by fine grading.
- B. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 1. Provide a smooth transition between existing adjacent grades and new grades.
 2. Cut out soft spots, fill low spots, and trim high spots to conform to required surface tolerances.
 3. Grade area for paving to a depth below finish grades indicated, equal to base and pavement thickness to be constructed.
 4. Cut banks neatly to required finish grades as cut progresses, or leave cuts full and finish grading by mechanical equipment, which will produce finish grades indicated on Drawings.
 5. Grade filled banks full and compact beyond grade of finish bank so that when trimmed to finish grades, soil is compacted to density specified for final slope face.
 6. Bring areas to be graded to approximate finish grades and then scarify, moisten and roll to obtain required density. Scarify, moisten and roll resulting high and low areas to obtain required finish grades by cutting and filling.
 7. Grade future planting areas so that, upon cultivation and fertilization, they will conform to finish grades indicated for planting areas.

8. Protect all utilities.
- C. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
 1. Building pad tolerance plus or minus ½ inch (0.05-foot).
 2. Lawn or Unpaved Areas: Plus or minus (0.10-foot).
 3. Walks: Plus or minus (0.04-foot).
 4. Pavements: Plus or minus (0.04-foot).
- D. Grading Inside Building Lines: Finish subgrade to a tolerance of ½ inch when tested with a 10-foot straightedge.

3.15 FIELD QUALITY CONTROL

- A. A Geotechnical Engineer, designated by the Owner, will be engaged to perform continuous inspection of the placing and compacting of all fills and backfills within the limits of grading of this project. All work shall be done in accordance with the approved plans and these specifications and as recommended and approved by the Geotechnical Engineer. Revised recommendations relating to conditions differing from the approved soils engineering and engineering geology reports shall be submitted to the owner, inspector, architect and the civil engineer. Costs for all such inspections and tests shall be paid by the Owner. The Contractor shall be responsible for notifying the Geotechnical Engineer in advance so that he may be present to perform his services as needed.
- B. The Geotechnical Engineer shall submit compaction reports to the Construction Manager and the Architect at the completion of the work, including test results and plot plans indicating the locations from which the tested samples of fill were taken. The Geotechnical Engineer shall keep the Construction Manager informed on the progress of the grading work.
- C. Testing Agency Services: Allow testing agency to inspect and test each subgrade and each fill or backfill layer. Do not proceed until test results for previously completed work verify compliance with requirements.
 1. Perform field in-place density tests according to ASTM D 1556 (sand cone method) or other test method as considered appropriate by Geotechnical Engineer.
 - a. Field in place density tests may also be performed by the nuclear method according to ASTM D 2922, provided that calibration curves are periodically checked and adjusted to correlate to tests performed using ASTM D 1556. With each density calibration check, check the calibration curves furnished with the moisture gages according to ASTM D 3017.
 - b. When field in place density tests are performed using nuclear methods, make calibration checks of both density and moisture gages at beginning of work, on each different type of material encountered, and at intervals as directed by the Architect.
 2. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, perform at least one field in-place density test for every 2,000 sq. ft. or less of paved area or building slab, but in no case fewer than three tests.

3. Foundation Wall Backfill: In each compacted backfill layer, perform at least one field in place density test for each 100 feet or less of wall length, but no fewer than two tests along a wall face.
 4. Trench Backfill: In each compacted initial and final backfill layer, perform at least one field in place density test for each 150 feet or less of trench, but no fewer than two tests.
- D. When testing agency reports that subgrades, fills, or backfills are below specified density, scarify and moisten or aerate, or remove and replace soil to the depth required, recompact and retest until required density is obtained.
 - E. Owner's inspector will inspect foundation excavations when completed and ready for forms, after forms are in place, and before first placement of concrete.

3.16 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and re establish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or lose compaction due to subsequent construction operations or weather conditions.
 1. Scarify or remove and replace material to depth directed by the Architect; reshape and recompact at optimum moisture content to the required density.
- C. Settling: Where settling occurs during the Project correction period, remove finished surfacing, backfill with additional approved material, compact, and reconstruct surfacing.
 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

3.17 MAINTENANCE

- A. Install and maintain all erosion control devices, including sandbag and gravel bag dikes, silt fences, de-silting basins, inlet barricades, vehicle wash traps, and other features called for per Specification Section 01 50 00.
- B. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape to required tolerances, and compact to required density prior to further construction.

3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off the Owner's property.

END OF SECTION

**SECTION 32 13 13
SITE CONCRETE**

PART 1 – GENERAL

1.1 SECTION INCLUDES:

- A. Concrete walks, paving, ramps, curbs, walls, mow strips, fence footings and catch basins, and miscellaneous concrete site work as indicated on the drawings.
- B. Furnishing and installing formwork.
- C. Furnishing and installing reinforcing steel.
- D. Furnishing and placing concrete, including joints and finishing.
- E. Curing concrete.
- F. Repairing concrete work as required.

1.2 RELATED SECTIONS:

- C. Division 03 30 00 - Cast-In-Place Concrete

1.3 SUBMITTALS

- A. All submittals shall be made in accordance with Division 1.
- B. Submit concrete mix designs for approval. Indicate intended use of each proposed mix design submitted.
- C. Samples: Prepare three samples of each type of concrete flatwork finish delineated on the plans for approval by the Architect. Each sample is to be a minimum of 4 square feet in area, and may be a part of the finished concrete site-work. Remove and properly dispose of any rejected samples, or those which are not part of the finished work, at no additional cost to Owner.

1.4 QUALITY ASSURANCE

- A. Conform to Section 01 43 00 - Quality Control.
- B. Standards: Concrete work shall conform to the requirements of "Standard Specifications for Public Works Construction", Current Edition, PWC Specifications and herein specified.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Conform to Section 201 – "Concrete, Mortar and related materials" of the Standard Specification for Public Works Construction.
- B. Forms: Steel, wood, or other suitable material of size and strength to resist moving during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects.

1. Use flexible spring steel forms or laminated boards to form radius bends as required.
 2. Coat forms with a non-staining form release agent that will not discolor or deface surface of concrete.
- C. Reinforcing Steel:
1. Reinforcing Bars: ASTM A615, Grade 60.
 2. Welded Wire Mesh: ASTM A185.
 3. See Division 03: Reinforcing Bar.
- D. Concrete Materials:
1. Finished Concrete: Concrete class per PWC Specifications Section 201-1 12, except 6-inch reinforced concrete paving shall be 560-C-3500 concrete.
 2. Combined Aggregate: Gradation per PWC Specifications, Section 201-1.3.2.
 3. Cement: Portland Cement, Type II conforming to ASTM C-150.
 4. Water: Clear, clean and free from oil, vegetable matter and other deleterious substances.
- E. Redwood Headers: "Foundation" grade redwood as graded by Redwood Inspection Service.
- F. Control Joint Material:
1. Metal: "Keyed-Kold" with retained (removable) cap as manufactured by Burke Concrete Accessories, Inc., or approved equal.
 2. Plastic: "Quickjoint" T-shaped 1/16" plastic strip, 1 Inch minimum depth as distributed by J.A. Crawford Co. Phone (562) 698-0901, or approved equal.
 3. Pre-molded Expansion Joint Filler: ASTM 1751 non-extruding bituminous saturated resilient joint filler.
- G. Bond Breaker: Resin type sealer. "Formfilm by A.C. Horn Co., "Form- Saver" by Sonneborn, or approved equal.
- H. Curing Materials:
1. Curing Paper: ASTM C171, non-staining, reinforced.
 2. Liquid Curing Compound: Non-staining, complying with ASTM C309 at manufacturers recommended rate of application. Deliver curing compound in unopened labeled containers.
 - a. For Gray Concrete (non-pigmented); Wax-free, fugitive resin type. Thompson's "Waterseal" or approved equal.

- b. Pigmented Curing Compound: AASHTO Designation: M148, Type 11, white pigmented except that the loss of water in the water retention test shall not exceed 0.040- gram per square centimeter of surface.
- I. Abrasive Aggregate: Aluminum oxide (emery), alumina, or carborundum grains. "Emerendum" by Anti-Hydro, "Durafax" by Grace Construction Products, "Alundom Crystolon" by Norton Co., or approved equal.

PART 3 - EXECUTION

3.1 GENERAL

- A. After PCC pavement areas have been brought to subgrade, the Soils Engineer shall test the subbase to verify the design R Value used. If required, Soils Engineer will recommend changes to the pavement section:
- B. If paving thicknesses changes due to required testing, contractor shall justify pavement sections accordingly.

3.2 PREPARATION

- A. General; Coordinate work with related trades. Do not locate related work In concrete except as detailed. Place conduits In concrete slabs with a minimum cover of 2" above and below conduit. Locate accurately and secure In place all inserts, bolts, ties, dowels, miscellaneous plates, etc., before pouring. They shall be clean and free from any coating which would reduce their bond.
- B. Base Course: Subgrade shall be smooth, true to line and grade, and tested for required compaction prior to start of placing concrete. Dampen subgrade 24 hours before placing. Reroll as required. Wet forms to tighten cracks.
- C. Reinforcing Steel: Position, support and secure reinforcement against displacement. Locate and support with metal chairs, runners, bolster, spacers and hangers, as required. Set wire tie so ends are directed into concrete, not toward exposed concrete surfaces.
- D. Formwork: Stake rigidly at 4 feet on center and secure against displacement. Install stretched wires or other devices to indicate displacement. Formwork shall not deviate more than 1/8" from required positions and levels. Curb forms shall be smooth on the side placed next to the concrete, and shall have a true smooth upper edge. The depth of forms for back of curbs shall be equal to the full depth of the curb. The depth of face forms shall be equal to the full face height of the curb. Carefully set forms to alignment and grade and to the required dimensions. Hold forms rigidly In place by stakes, clamps, spreaders and braces as required to insure rigidity. Benders or thin plank forms may be used on curves, grade changes, or for curb returns. Back forms for curb returns may be made of 1/2 Inch thick benders cleated together for full depth of the curb. Do not remove the form on the front of the curbs In less than one hour nor more than six hours after the concrete has been placed. Do not remove side forms for sidewalks, gutter depressions, island paving and driveways, less than 12 hours after the finishing has been completed.

3.3 CONCRETE MIX

- A. Comply with requirements of PWC Specifications, Section 201-1.3 proportioning and Section 201-1.4 mixing and as herein specified. Concrete strength shall be 2500 psi at 28 days unless specified by Architect to be of a greater strength for the application-specific purpose.

3.4 PLACING CONCRETE

- A. General: Place concrete in accordance with PWC Specifications Section 303-5.3.

3.5 CONTROL JOINTS

- A. Control Joints; Locate as indicated; where not shown locate at maximum 15 feet on center for flatwork and 30 feet on center for curbs. Tool edges except at structures.
1. Plastic Joints: Immediately following preliminary troweling, part concrete to a depth of 2 inches with #750 Lightweight Cutter Bar. Install plastic joint material so that the pull-top stiffener is flush with the top of concrete and immediately peel off pull-top stiffener. After pull top is removed, float concrete to fill all voids adjacent to strip. During final troweling, finish edge to a maximum radius of 1/8" Using a #355 or #350 slit jointer tool.
 2. Metal Joints: Install "Key-Kold" metal joint form. Set top of stakes 3/8" below slab surface elevation. Install with minimum of 5 stakes per 10 foot length. When concrete is not poured continuously over both sides of the joint, the knock-out anchors shall be bent at a 45 degree angle into the pour. Finish the concrete to the top of the joint and burn in with hand trowel.
 3. Saw Cutting: Prior approval of Architect required. Saw cut shall be 1/4 depth of slab. Joints shall be cut to a chalk line. Saw cutting time shall be determined from preliminary saw cut indicating that concrete is set up sufficiently to prevent raveling at the cut.
- B. Expansion Joints at Structures: Provide 1/2" minimum pre-molded Joint filler for expansion joints abutting concrete curbs, catch basins, manholes, nets, structures, walks and other fixed objects, unless otherwise indicated.
1. Extend joint fillers full-width and depth of joint, and not less than 1/2" or more than 1" below finished surface where joint sealer is indicated. If no joint sealer, place top of joint filler flush with finished concrete surface.
 2. Joints between slabs and structures: install 30 lb. building paper strip against wall of structure for pour splash protection as well as to prevent bond to wall. Trim off even with surface of concrete slab.
- C. Design/Control Joints:
1. General: Joints shall be true to line and profile. tooling shall be done while concrete is plastic. Joint may be started with a straightedge inserted into concrete.
 2. Jointing Tool: Shall be 1/4" wide at surface, tapered, with top edges rounded to 1/4" radius.
 3. Location: As shown on drawings, but in any case not more than 15 feet on center both ways. Typical sidewalk joints shall be jointed at 5 feet on center or as directed by Architect.

3.6 FINISHING

- A. Smooth Finish: Steel trowel and burnish to a smooth, dense, and hard finish.

- B. Medium Broom Finish: Broom finish by drawing a fine-hair broom across concrete surface, perpendicular to line of traffic. Repeat operation if required to provide a fine line texture acceptable to Architect.
- C. Walks and Sidewalks:
 - 1. Slopes less than 6 percent: Surfaces with a slope equal to or less than 5 percent gradient shall be at least as slip-resistant as that described as a medium broom finish.
 - 2. Slopes 6 percent or greater: Surfaces with a slope of 6 percent grade shall be heavy broom finish.
- D. Abrasive: Exterior stair treads, ramps and landings shall receive a nonslip, light broom finish in addition to abrasive finish of abrasive grains in amount of 30 pounds per 100 square feet shall be evenly applied by the "dust-on" method and embedded in to the surface during the first troweling operation. Additional abrasive grains, in the amount of 30 pounds per 100 square feet, shall then be evenly applied and embedded into the surface during the final troweling operation.
- E. Curbs. Prior to the removal of curb forms, the surface shall be finished true to grade by means of a straight edge float, not less than 10 feet in length, operated longitudinally over the surface of the concrete. Smooth trowel face of curb immediately after removal of front curb form to a depth of not less than 2 inches below the flow line. Steel trowel face and tops of curb and provide rounded front and back edges. After the face of the curb has been troweled smooth, it shall be given a final fine brush Finish with brush strokes parallel to line of curb. Top and face of curbs shall be true and straight, of uniform width, free from humps, sags or other Irregularities.
- F. Other Flatwork: Finish to grade and cross section with a float, trowel smooth and finish with a broom, unless otherwise specified. Float shall not be less than 10 feet in length and not less than 6 inches in width.

3.7 CURING

- A. Moist Curing for Natural concrete: Cover with reinforced waterproof curing paper. Seal all joints and weight down edges. Maintain moist for 14 days.
- B. Liquid Curing Compound for Natural Concrete: Locations as approved by Architect. Apply a uniform coating within 2 hours of final troweling.

3.8 REPAIRS AND PROTECTIONS

- A. Repair or replace broken or defective concrete, as directed by Architect.
- B. Protect concrete from damage until acceptance of work. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur. If appropriate, concrete may be covered with construction plastic guard or visquene to protect surface finish.
- C. Sweep concrete pavement and wash free of stains, discolorations, dirt and other foreign material just prior to final inspection.

END OF SECTION

**SECTION 32 31 13
CHAINLINK FENCE**

PART 1 – GENERAL

1.01. REFERENCE

- A. Requirements in Addenda, Alternates, Conditions, and Division 1 collectively apply to this work.

1.02. DESCRIPTION

- A. Principal Work Items Are:
 - 1. Chain link fence.
 - 2. Concrete post foundations.
 - 3. All hardware, except padlocks.
 - 4. Gates.
 - 5. Enclosures / Cages
 - 6. Existing Fencing: Removal, modifications and replacing fabric where indicated.

1.03. SUBSTITUTIONS

- A. Only written approval of Architect will permit substitutions for materials specified; see General Conditions for procedure.

1.04. QUALITY ASSURANCE

- A. Requirements Of Regulatory Agencies Relative to Gates and Hardware in the Path of Travel:
 - 1. Codes: Conform to 2022 Title 24 CBC Section 1007.3.11 and California Fire Code (CFC) Section 1208.
- B. Quality Standards: All work shall comply with Chain Link Fence Manufacturers Institute (CLFMI) standards, ASTM F567, and all requirements in these specifications: The most stringent requirements shall apply where there are conflicts.

1.05. SUBMITTALS

- A. Samples; 2 Copies: Provide sample of privacy slats, minimum sample size 8" long slat in specified width.
- B. Product Data; 4 Copies: Provide Mfr.'s latest specifications and technical information brochure with installation instructions for privacy slats, including 4 color charts showing all available colors.
- C. Shop Drawings; 4 Copies: Reference to Architects' drawings. Provide and submit for the following items:
 - 1. All new swing gates where leaf width exceeds 9'-0".

1.06. PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials with mfr.'s tags and labels intact. Handle and store so as to avoid damage.

1.07. JOB CONDITIONS

- A. Sequencing, Scheduling: Coordinate with earthwork, concrete, masonry, pre-engineered structures, and paving installers and other related work.
- B. Where fencing is installed on continuous concrete or masonry walls or curbs, assist Concrete or Masonry Section in proper placement of sleeves for fence posts. See details.
- C. Closely coordinate with landscaping, turf and irrigation modifications, repair, and new work.
- D. Review and verify all new and existing underground utility locations to prevent footing interference with said existing utilities.

PART 2 – PRODUCTS

2.01. GENERAL

- A. All fence components to be galvanically compatible.

2.02. MATERIALS; FABRIC

- A. General: Drawn steel wire, hot-dipped zinc coated after weaving, ASTM A-392 Class 1, 1.2 oz/sq. ft. of wire surface, per ASTM A-90 stripping test; withstand 5 one-minute immersions per Preece test per ASTM A-392 & A-90.
- B. Fence & Gate Fabric:
 - 1. One-piece fabric full-height for fence thru 12'-0"; edges knuckled selvage. Top edges over 6'-0" above adjacent finish surface knuckle-to-knuckle for senior high schools.
 - 2. Mesh Size: 2" typical.
 - 3. Wire Dia.: #9 ga. typical.
 - 4. Fabric shall be free from barbs, icicles, or other projections resulting from the galvanizing process, which might be hazardous. Fence fabric having such defects will be rejected and Contractor shall replace it with suitable fabric at NO cost to District even if it has been installed.

2.03. MATERIALS; FRAMEWORK

- A. Pipe: ASTM F-1083, Class I, Sched. 40, standard welded or seamless steel pipe, commercial hot-dipped zinc coated, 1.8 oz/sq. ft. min. evenly deposited; reasonably straight, burrs removed, free of defects and all roughness.
- B. Reuse existing fence posts where indicated on Drawings and that are in good condition and approved for reuse by District Inspector and Architect. If not in good condition or approved, provide new posts per specifications herein.
- C. Sizes: For fencing; See Plan

2.04. MATERIALS; ACCESSORIES

- A. Wire: All galvanized.

1. Tension: #9 ga. steel, cold drawn, marcelled; ASTM A-82.
 2. Ties: Soft annealed steel; FS QQ-W-461; for fastening fabric to posts, top rails, bottom rails and brace rails:
 - a. #9 ga. to posts.
 - b. #14 ga. to top & bottom rails, and tension wire.
- B. Galvanizing; All Accessories, Except Wire: ASTM A-153.
- C. Fittings:
1. Tension Bars: 3/16" x 3/4", mild steel.
 2. Steel Bands: 1/8" x 1" typical, 1/8" x 3/4" at gates; mild steel.
 3. Post Eye Caps: Cast malleable iron or pressed steel; snug fit to exclude moisture from posts; hole to accommodate top rail.
 4. Truss Rods: 3/8" dia. steel; adjustable length.
 5. Turnbuckles for Tension Wire: Eye/eye type, drop forged steel, 5/16" min. screws with 4-1/2" min. take-up.
 6. Bolts: 3/8" dia. min.; cadmium plated.
 7. Expansion Couplings For Rails: Steel, 6" long; designed to fit tightly inside rail, fitted with raised center.
 8. Hog Rings: Sizes and gages as required; #9 ga. minimum galvanized steel.
 9. Rail Ends For Top Rails and Brace Rails: Malleable iron (ASTM A47, Grade 32510) with holes to receive 3/8" bolts for securing to rail end bands.
 10. Misc.: All other required fittings.
 11. Sleeves For Posts: Steel pipe ASTM A36, or A53 Grade B; fully galvanized including exposed cut edges; sleeve diameters sized to suit posts, inside diameter of sleeve shall be 1" larger than outside diameter of posts to allow 3/8" to 5/8" clearance all around post for placing non-shrink grout into sleeve. Sleeve depth 12" min. for fence heights up to 8 ft. max.; greater depths for higher fences; see Details on Drawings.
 12. 1 1/4" to 1 1/2" bottom rail, fully welded in place bottom rail only.

2.05. MATERIALS; GATE HARDWARE

- A. General:
1. Mfr.'s standard galvanized heavy duty hardware, unless noted otherwise on Drawings.
 2. Galvanizing For All Parts: ASTM A-153; galvanize after fabrication.
- B. Hinges: Typically, malleable iron, double clamping, non-lift-off, offset type for 180 deg. swing. Install and adjust hinges; burr or center punch threads of gate hinge bolts to prevent removal of nuts.
- C. Latches: Typically, malleable iron, forked or plunger-bar type, permit operation from either side of gate, gravity type automatically engaging gate frame; with padlock eyes for locking gates in both the open and closed positions; mounting height at 30" to 44" above finished floor.
- D. Keeper: Malleable iron; automatically engage gate when swung open 180 deg., and hold until manually released.
- E. Pairs Of Gates:
1. Stops: Flush steel plate, with anchors.
 2. Latch: Center drop rod or plunger bar; with integral padlock eyes.

2.06. MATERIALS; MISC.

- A. Portland Cement Concrete: 1: 2-1/2: 3-1/2 mix (3000 psi min.) delivered by Ready-mix truck. Concrete bag mixes or concrete mixed on-site are not acceptable.
- B. Non-Shrink Grout: Por-Rok by Hallemite Co.; Embeco by Master Builders; Sika Grout #212. Color/tint grout to match adjacent concrete surfaces where grout is installed.
- C. Paint Touch-Up For Galvanizing Work:
 - 1. "Galvalloy", by Metalloy Products Co., Los Angeles, CA; as a standard of quality.
 - 2. Z.R.C. Cold Galvanizing Compound, "Galvilite" by Z.R.C. Chemical Products Co., Quincy, MA.

2.07. FABRICATION; GATES

- A. Frame: Weld frames with integral radius or mitered and fully welded corners; horizontal bracing rails for gates exceeding 6' high; vertical bracing rails at 6' o.c. max. for gates exceeding 9' wide; diagonal cross-bracing truss rods to insure gates stay square and operate properly. Grind all welds flush and smooth. Galvanize after fabrication.
- B. Fabric: Stretch taut; tension bars and bands a 15" o.c. max. at vertical edges. Tension bars shall extend full height of gates. Wire tie fabric at 12" o.c. max. top, bottom, and bracing rails.
- C. Hardware: Attach all hardware securely with rivets or by other means which will provide security against removal and breakage. Two hinges per gate leaf typical; three hinges per leaf where leaf exceeds 100 sq. ft.

PART 3 – EXECUTION

3.01. INSPECTION

- A. Verify that final grading and paving at fence location is completed without irregularities, which would interfere with fence installation.
- B. Do not commence work until unsatisfactory conditions have been corrected.

3.02. PREPARATION

- A. Existing Conditions: Verify locations of existing and new underground utilities and water lines prior to excavating for footings.
- B. Layout: Measure and lay out complete fence line, gate(s), and modifications to existing fence.
- C. Post Spacing:
 - 1. General: Locate line posts at equal-distance spacing in a run, but do not exceed 8-feet on center, unless noted otherwise.

3.03. INSTALLATION; FOOTINGS

- A. Sizes; For Fencing: See Plan

- B. Holes: Drill holes in firm, undisturbed, or compacted soil.

3.04. ERECTION; FRAMEWORK

A. Posts:

1. Typical Installation; Posts Set Into Concrete Footings:
 - a. General: Set posts into concrete footings plumb, centered, and aligned; 3" concrete cover between post bottom and earth.
 - b. Concrete: Place in continuous pour in hole; tamp to consolidate; crown concrete to drain water away from posts.
 - c. Rebar: Where indicated, install rebar cages.
 - d. Set posts and footings prior to installation of adjacent paving. Locate top of footing a minimum of 3 inches (4" at concrete) below indicated finish elevation of top of adjacent paving or mow strip, to allow paving or mow strip to cover footing and finish tight to post.
2. Installation of Fencing on Walls or Curbs Where Indicated; Posts Set Into Sleeves:
 - a. Check and verify that sleeves are properly galvanized, and installed by Concrete and/or Masonry sections.
 - b. Set posts plumb and true to line.
 - c. Fill space between post and sleeve solid with non-shrinking grout. Mix and place per mfr.'s printed recommendations. Color grout to match color of adjacent concrete. Finish flush to match adjacent concrete surface. Do not grind or damage sleeve or post galvanizing. Slightly crown grout to drain water away from posts.
3. Corner/Terminal/Pull Posts: Install at ends of runs, horizontal direction changes of 15 deg. or more, vertical grade changes of 5 deg. or more, ends of curved fence section; pull post each 500' run of fence.
4. Gate Posts: Install each side of gates.

B. Top Rail: Install continuous at top of ALL fencing; insert thru eye posts caps; join pipe lengths (20'-0 plus or minus) with couplings, with expansion spring every fifth coupling. Secure at ends with rail-end fittings and bands and tack weld.

C. Bottom Rail: Install continuous at bottom of ALL fencing unless noted otherwise; include couplings, end clamps and boulevards as required for complete assembly and securely anchor rail to each end connection to line and terminal posts per manufacturer's specifications with proper end clamp fittings; maximum 2" gap below fence. Weld all connections for bottom rails.

D. Post Bracing Assemblies: Install horiz. brace rail, and diagonal truss rod in each fence panel adjacent to terminal, corner, pull, and gate posts. Brace rail not required for 4' or less height fence. Where applicable, install horizontal transom rail between gates and chain link fence above. Tack weld all connections.

E. Lid of Enclosure: Provide horizontal support rails, 1 5/8" diameter, spaced at 24" on center to support 26" wide sheets of corrugated metal. Provide additional cross frame

rails as required to adequately brace enclosure lid. Completely weld support and cross rails to form a welded lid assembly. Lid of enclosure and post supports shall be installed to allow corrugated roof to drain at 1/4" per ft. min. Provide and install galvanized, 24 ga. corrugated sheet metal in panels sized at 42" long x 26" wide. Install panels with overlap at sides and min. 6" overlap at each end. Weld and pop rivet to secure corrugated metal sheets to each other and to chain link frame. Seal pop rivets with silicone typical.

- F. Install additional horizontal and vertical rails as required or indicated to securely fasten fence fabric tightly at concrete curbs or at irregular conditions at bottom of fence(s) to provide maximum gap/opening of 2". Provide couplings, end clamps and boulevards as required for complete assembly per mfr.'s specifications. Tack weld all connections.

3.05 ERECTION; FENCE FABRIC

- A. Fabric: Install in one continuous piece wherever possible; stretch taut.
 - 1. Adjoining existing fencing: Match existing.
 - 2. At Replacement of Fence Fabric: Match existing, unless noted otherwise.
- B. Fastenings:
 - 1. At terminal/corner/pull/gates posts, thread tension bars thru mesh; secure to posts with bands at 15" o.c. max.
 - 2. Wire-tie fabric to line posts at 16" o.c.; to top rail, bottom rails, brace rails, and intermediate rails at 18" o.c.
 - 3. Hog-ring to bottom tension wire at 18" o.c., where bottom rails do not occur.
 - 4. Hooked ties with links are NOT permitted.
- C. Tension Wires: Install tension wires with a turnbuckle each 150' of wire; stretch wire taut; and wire tie to posts. Install two tension wires within bottom two feet of fence fabric.
- D. Clearances: Set bottom of fence fabric to maintain stated clear distances.
 - 1. Earth: 1" to 2"; trench and shape locally to permit uniform top and bottom alignment of fabric.
 - 2. Asphalt Concrete Paving: 1" to 1-1/2".
 - 3. Concrete Paving or Mow Strip: Touching surface.
 - 4. Top Of Wall: Touching surface, or tight to bottom rail, where occurs.

3.06 ERECTION; GATES

- A. Install gates plumb and level to a tolerance of 1/4 in. in 10 ft.
- B. Install ground-set items in concrete.
- C. Adjust hardware to provide smooth operation. Lubricate where required.
- D. Knuckle ends of fabric to eliminate hazards. Allow clearance on gates of 1-1/2" at bottom.

3.07 EXISTING FENCING; REMOVAL, REUSE, SALVAGE, & MODIFICATIONS

- A. Removal Work:
 - 1. Remove existing fencing as indicated, including concrete post footings and mow strips.

2. Post Holes: Fill with earth, compact to same density as surrounding earth. At paving areas, compact fill to 95% max. dry density, and flush with adjoining surfaces.
3. Disposal: Dispose of all removed materials which are not indicated to be reused or salvaged, off-site at Contractor's expense.

B. Reuse Of Existing Fencing; where indicated and approved by Architect:

1. Remove existing fence fabric as indicated. Leave posts and footings in place.
2. Fully clean existing posts of all rust, properly prep, and apply galvanizing paint per mfr.'s specifications. Finish surface to be clean and smooth and with consistent galvanized coating equal to G-90 hot-dipped galvanizing.
3. Replace any damaged posts as determined by the Architect.
4. Provide new posts and framing members as indicated on Drawings.
5. Install new fence fabric and hardware to same requirements as specified for all-new work.
6. Do not reuse defective materials or parts.
7. Supply any missing and/or additional parts necessary for a complete installation.
8. Conform to same standards as for all-new work.
9. Dispose of all removed materials which are not indicated to be reused, off-site at Contractor's expense.

C. Modifications To Existing Work:

1. Where only partial removal is indicated, install posts and rails as required to terminate fencing.
2. Fence Fabric: Knuckle cut edges; stretch taut; reattach to framework and tension wire.
3. Posts: Existing posts to remain as much as possible. Add new posts at new gate(s) and where necessary at existing fence so line post spacing does not exceed 8 feet on center.
4. Sleeved Conditions: At posts to be sleeved, insert full height posts over the top of existing posts, and tack weld new post to existing post at bottom. Note that sleeve posts shall be continuous, from grade to lid of batting enclosure and shall be sized to fit snugly over existing posts.
5. Conform to same standards as for all-new work.

3.08 ADJUSTMENT & CLEANING

- A. Adjustment: Adjust brace rails and tension rods for rigid installation. Tighten hardware, fasteners, and accessories.
- B. Repair of Damaged Work: Where operations damage work to remain, repair, replace or restore work as directed by Architect and/or District using qualified workmen of respective trades. Closely coordinate work with irrigation, paving, concrete, landscaping, electrical and utilities, and all other related or adjacent work.
- C. Cleaning: Remove excess and waste materials from Project site.

END OF SECTION