Technical Specifications For:

CAMPO-KUMEYAAY HEAD START PARKING LOT

Clover Flat Elementary School

Client:
Mountain Empire Unified School District
3291 Buckman Springs Road
Pine Valley, CA 91962

Architect:
AlphaStudio Design Group
6152 Innovation Way
Carlsbad, CA 92009
760-431-2444

Civil Engineer:
Pasco, Laret, Suiter & Associates
27127 Calle Arroyo, #1904
San Juan Capistrano, CA 92675

Structural Engineer:
Wiseman + Rohy Structural Engineers
9915 Mira Mesa Blvd., Ste 200
San Diego, CA 92131

www.alphastudio-design.com

CAMPO-KUMEYAAY HEAD START PARKING LOT

Clover Flat Elementary School

Architect:
Paul Gallegos

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-121384 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 03/08/2023

Structural Engineer:
James Wiseman

Approved By:

TABLE OF CONTENTS

SECTION 01 1000
SUMMARY

PART 1 GENERAL

1.01 PROJECT

A. Project Name: Parking Lot Upgrades - Campo-Kumeyaay Head Start - Clover Flat ES.

B. Owner's Name: Mountain Empire Unified School District.

C. Architect's Name: AlphaStudio Design Group.

D. The Project consists of the following:
   1. New parking lot and site paving for the Campo-Kumeyaay Head Start at the Clover Flat Elementary School.
   2. The removal of an existing wood retaining wall and replacement with a new masonry retaining wall.
   3. All associated site and utility work.
   4. As shown in Contract Documents prepared by AlphaStudio Design Group; 6152 Innovation Way, Carlsbad, CA 92009; (760) 431-2444.

1.02 DEFINITIONS

A. C.B.C.: California Building Code.

B. C.C.R.: California Code of Regulations.

C. Furnish: To supply products to the project site, including delivery.

D. Install: To put products in place in the work ready for the intended use, including unloading, unpacking, handling, storing, assembling, installing, erecting, placing, applying, anchoring, working, finishing, curing, protecting, cleaning, and similar operations.

E. Provide: To furnish and install products.

F. Indicated: Shown, noted, scheduled, specified, or drawn, somewhere in the Contract Documents.

1.03 REGULATORY REQUIREMENTS

A. The following regulations are applicable to this project:
   1. 2019 California Building Code, Title 24, Part 2, California Code of Regulations (C.C.R.).
   2. 2019 California Electrical Code, Title 24, Part 3, California Code of Regulations (C.C.R.).
   3. 2019 California Mechanical Code, Title 24, Part 4, California Code of Regulations (C.C.R.).
   4. 2019 California Plumbing Code, Title 24, Part 5, California Code of Regulations (C.C.R.).
   5. 2019 California Fire Code, Title 24, Part 9, California Code of Regulations (C.C.R.).

B. Submit copies of all permits, licenses, and similar permissions obtained, and receipts for fees paid, to the owner directly.

1.04 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Price.

1.05 OWNER OCCUPANCY

A. Owner intends to continue to occupy adjacent existing building during the entire construction period.

B. Owner intends to occupy the Project upon Substantial Completion.

C. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

D. Schedule the Work to accommodate Owner occupancy.

1.06 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: Limited to areas noted on Drawings.

B. Arrange use of site and premises to allow:

1. Owner occupancy.
2. Work by Others.
3. Work by Owner.

C. Provide access to and from site as required by law and by Owner:
   1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
   2. Do not obstruct roadways, sidewalks, or other public ways without permit.

D. Time Restrictions:
   1. Limit conduct of especially noisy exterior work to the hours of before or after school hours or on weekends. Coordinate with the District Representative prior to commencing work.

E. Utility Outages and Shutdown:
   1. Limit disruption of utility services to hours the site is unoccupied.
   2. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 48-hours notice to Owner and authorities having jurisdiction.
   3. Prevent accidental disruption of utility services to other facilities.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 1150
PROJECT COORDINATION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:
   1. Coordination.
   2. Administrative and supervisory personnel.
   3. General installation provisions.
   4. Cleaning and protection.

1.03 COORDINATION

A. Coordinate all aspects of the Work so each portion is installed in proper relationship with the whole, so the Work progresses in the proper order, in a smooth manner, and without interference between the trades.

B. Observation of Work by others shall not be interpreted as relieving the Contractor from responsibility for coordination of all Work, superintendence of the Work, or scheduling and direction of the Work.

C. Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.
   1. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
   2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
   3. Make adequate provisions to accommodate items scheduled for later installation.

D. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
   1. Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.

E. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
   1. Preparation of schedules.
   2. Installation and removal of temporary facilities.
   3. Delivery and processing of submittals.
   4. Progress Meetings.
   5. Project Closeout activities.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.01 GENERAL INSTALLATION PROVISIONS

A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.

D. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.

E. Visual Effects; Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.

F. Recheck measurements and dimensions, before starting each installation.

G. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.

H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.

I. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

3.02 STARTING EQUIPMENT AND SYSTEMS

A. Provide manufacturer's field representative to prepare and start systems.

B. Adjust for proper operation within manufacturer's published tolerances.

C. Demonstrate proper operation of equipment to Owner's designated representative.

3.03 CLEANING AND PROTECTION

A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

END OF SECTION

SECTION 01 2000
PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.

B. Documentation of changes in Contract Sum and Contract Time.

C. Contract Change procedures.

D. Correlation of Contractor submittals based on changes.

E. Procedures for preparation and submittal of application for final payment.

1.02 RELATED REQUIREMENTS

A. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, Special Conditions, and other Sections in Division 1 of these Specifications.

B. The Contract Sum and the schedule for payments are described in other Documents of the Contract.

1.03 SCHEDULE OF VALUES

A. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.

B. Forms filled out by hand will not be accepted.

C. Submit a printed schedule on AIA Form G703 - Application and Certificate for Payment Continuation Sheet. Contractor's standard form or electronic media printout will be considered.

D. Submit Schedule of Values in duplicate within 5 days after date of Owner-Contractor Agreement.

E. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification Section. Identify site mobilization.

F. Include separately from each line item, a direct proportional amount of Contractor's overhead and profit.

G. Revise schedule to list approved Change Orders, with each Application For Payment.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.

B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.

C. Forms filled out by hand will not be accepted.

D. Present required information two on electronic media printout.

E. Form: AIA G702 Application and Certificate for Payment and AIA G703 - Continuation Sheet including continuation sheets when required.

F. For each item, provide a column for listing each of the following:
   1. Item Number.
   2. Description of work.
   3. Scheduled Values.
   4. Previous Applications.
   5. Work in Place and Stored Materials under this Application.
   6. Authorized Change Orders.
   7. Total Completed and Stored to Date of Application.
   8. Percentage of Completion.
   9. Balance to Finish.
   10. Retainage.

G. Execute certification by signature of authorized officer.

H. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.

I. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.

J. Submit three copies of each Application for Payment.

K. Include the following with the application:
   1. Transmittal letter as specified for Submittals in Section 01 3000.
   2. Construction progress schedule, revised and current as specified in Section 01 3000.
   3. All items listed and required under Article 37 of the General Conditions.

L. When Architect requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

M. PROCESSING:
   1. The Contractor shall submit a proposed Schedule of Values along with a draft Application for Payment to the Architect and Project Inspector for review, comment and approval prior to submitting the first Application for Payment.
   2. When preparing the Application for Payment each month, the Contractor shall review the proposed percentages of completion of work being applied for with the Project Inspector, who shall approve of the percentages prior to formalizing the Application for Payment. If possible, the percentages should be reviewed with the District, Architect and Project Inspector at the closest scheduled job meeting prior to finalizing.
   3. The Contractor shall submit three (3) copies of the Applications for Payment, with original signatures to the Project Inspector, who will verify the percentages and sign all copies. The Contractor shall be responsible for delivery to the Architect for signatures.
   4. The Architect will review the Application for Payment, and the Architect of Record will sign all copies and forward it to the Contractor, who in turn shall be responsible for delivery to the District for signatures, processing and payment.
   5. Applications for Payment shall be made on a monthly basis and shall be filed by the Contractor to the District in the timeframe as set forth in the General Conditions. Signatures on the Application for Payment shall include the Contractor, Architect, and Project Inspector. The Contractor shall be responsible for obtaining all required signatures. Once all signatures are obtained, Application for Payment may be submitted to the District. Work for payment may be estimated or pro-rated to the end of the month if approved before hand by the District.
   6. Applications for Payment may include billing for project materials not on-site if these materials have been received and are being stored in a bonded warehouse. Receipts for such project materials must accompany the Application for Payment.
   7. Applications for Payment will not be processed if As-Built Drawings are not updated to the satisfaction of the Project Inspector and the Architect.

1.05 MODIFICATION PROCEDURES

A. Submit name of the individual authorized to receive change documents and who will be responsible for informing others in Contractor's employ or subcontractors of changes to the Contract Documents.

B. For minor changes not involving an adjustment to the Contract Price or Contract Time, Architect will issue instructions directly to Contractor.

C. Architect's Supplemental Instructions (ASI): Architect will advise of minor changes in the Work not involving an adjustment to Contract Sum or Contract Time as authorized by the Conditions of the Contract by issuing supplemental instructions on Architect's Supplemental Instructions (A.S.I.).

D. Construction Change Directive (CCD): Architect may issue a document, signed by District, instructing Contractor to proceed with a change in the Work, for subsequent inclusion in a

Change Order.

1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
2. Promptly execute the change.

E. Proposal Request (P.R.): Architect may issue a document which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 5 days.
   1. PROPOSAL REQUEST PRICING:
      a. The Contractor responds to a Proposal Request using the Proposal Request Pricing area on the Proposal Request form, a copy of which is found at the end of this section. The Contractor completes this form providing an itemized cost breakdown and indicating any extensions of time required. Upon review and acceptance of the cost submitted, and when signed by the Owner and Architect and received by the Contractor, this document becomes effective IMMEDIATELY and the Contractor shall proceed with the approved changes. Proceeding with the changes constitutes acceptance of the cost and time adjustment indicated.

F. Proposed Contract Modifications (PCM): Contractor may propose a change by submitting a request for change or Proposed Contract Modification (P.C.M.) to the Architect, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01 6000.
   1. PROPOSED CONTRACT MODIFICATIONS (P.C.M.'s):
      a. If additional services are required in the opinion of the Contractor that a Proposal Request has not been issued for, the Contractor issues the Proposed Contract Modification form, a copy of which is found at the end of this section. The Contractor completes this form providing an itemized cost breakdown and any pertinent backup information deemed necessary to fully justify the cost submitted, and indicating any extensions of time required. Upon review and acceptance of the cost submitted, and when signed by the District and Architect and received by the Contractor, this document becomes effective IMMEDIATELY and the Contractor shall proceed with the approved changes. Proceeding with the changes constitutes acceptance of the cost and time adjustment indicated.
   2. P.R. / P.C.M. REPLY:
      a. If the Architect takes exception to any portion of the Proposal Request Pricing and/or Proposed Contract Modification submitted by the Contractor, the Architect shall reply in writing using the the P.R./P.C.M. Reply form. The Contractor shall resubmit a revised P.R. or P.C.M. (utilizing the same number but with a letter suffix, i.e. "P.C.M. #1A") in response to the comments made by the Architect.
      b. Should the dollar amount of additional costs or credits attributable to the P.R. and/or P.C.M. become a point of contention, the Contractor and the Architect shall each make a reasonable effort to arrive at a mutually agreed upon dollar amount. If an agreement cannot be reached within a reasonable time frame, dollar amounts will be based on the current edition of SAYLOR PUBLICATIONS, INC. CURRENT CONSTRUCTION COSTS. Other cost estimating books or reference materials may be used for determining dollar amounts if acceptable to the General Contractor, Architect and the Owner.

G. Execution of Change Orders: All approved P.R.'s and P.C.M.'s shall be processed as Change Orders. Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract. All Change Orders must be approved by the School Districts Governing Board and D.S.A.

H. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.

1. Refer to Article 40 of General Conditions.

I. Substantiation of Costs: Provide full information required for evaluation.
   1. On request, provide following data:
      a. Quantities of products, labor, and equipment.
      b. Taxes, insurance, and bonds.
      c. Overhead and profit.
      d. Justification for any change in Contract Time.
      e. Credit for deletions from Contract, similarly documented.
   2. Support each claim for additional costs with additional information:
      a. Origin and date of claim.
      b. Dates and times work was performed, and by whom.
      c. Time records and wage rates paid.
      d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
   3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.

J. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

K. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

L. Promptly enter changes in Project Record Documents.

1.06 APPLICATION FOR FINAL PAYMENT

A. As specified in the Agreement and Conditions of the Contract.
   1. Refer to Article 37 of the General Conditions.

B. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

C. Application for Final Payment will not be considered until the following have been accomplished:
   1. All requirements of Article 37 of the General Conditions.
   2. DSA Form 6-C Contractor Verified Report filed with the Division of the State Architect.
   3. All closeout procedures specified in Section 01780.

END OF SECTION

SECTION 01 3000
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preconstruction meeting.

B. Progress meetings.

C. Construction progress schedule.

1.02 RELATED REQUIREMENTS

A. Section 01 1000 - Summary: Stages of the Work, Work covered by each contract, occupancy, [_____].

B. Section 01305 - Submittals: Submittal procedures.

C. Section 01 7000 - Execution and Closeout Requirements: Additional coordination requirements.

D. Section 01 7800 - Closeout Submittals: Project record documents.

1.03 DEFINITIONS

A. REQUEST FOR INFORMATION (R.F.I.'s):

1. Requests for Information may be generated by the Contractor, any of the Contractor's subcontractors or the Owner's Inspector and should be directed to the Architect through the General Contractor using the form provided at the end of this section. Request for Information forms are used to help clarify and/or interpret the information contained in the Contract Documents or to resolve construction questions in the field.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

A. District will schedule a meeting after Notice of Award.

B. Attendance Required:

1. School District Representative.
2. Architect.
3. Contractor.
4. Inspector.
5. Project Superintendent.

C. Agenda:

1. Execution of Owner-Contractor Agreement.
2. Submission of executed bonds and insurance certificates.
3. Distribution of Contract Documents.
4. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.
5. Designation of personnel representing the parties in Contract, School District Representative and the Architect.
6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
7. Scheduling.
8. Scheduling activities of a Geotechnical Engineer.

D. Architect shall record minutes and distribute copies within five days after meeting to participants, with copies to Contractor, School District, Project Inspector, participants, and those affected by decisions made.

3.02 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the Work at an interval to be determined by the District.

B. Architect will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

C. Attendance Required: School District Representative, Architect, Project Inspector, Job Superintendent, Major Subcontractors and suppliers, as appropriate to agenda topics for each meeting.

D. Agenda:
   1. Review minutes of previous meetings.
   2. Review of Work progress.
   3. Field observations, problems, and decisions.
   4. Identification of problems that impede, or will impede, planned progress.
   5. Review of submittals schedule and status of submittals.
   6. Review of off-site fabrication and delivery schedules.
   7. Contractor update on Safety Program / Storm Water Management.
   8. Maintenance of progress schedule.
   9. Corrective measures to regain projected schedules.
   10. Planned progress during succeeding work period.
   11. Maintenance of quality and work standards.
   12. Effect of proposed changes on progress schedule and coordination.
   13. Other business relating to Work.

E. The Architect will record minutes and distribute copies prior to the next meeting to participants, with copies to the Owner, Inspector, Contractor, other participants, and those affected by decisions made.

F. The Progress Meetings are intended to be conducted in an orderly and professional manner. Any foul language or unprofessional conduct will not be tolerated, and will result in the cessation of the meeting. Meetings shall not be recorded without the concurrence of all parties in attendance.

3.03 CONSTRUCTION PROGRESS SCHEDULE - SEE SECTION 01 3216

A. Refer to Article 7 of the General Conditions for requirements.

B. The first payment will not be made unless the District has been provided and has accepted the project schedule.

C. Submit updated schedule with each Application for Payment.

3.04 REQUEST FOR INFORMATION

A. Request for Information (RFI): Requests for Information may be generated by the Contractor, any of the Contractor's subcontractors or the Owner's Inspector and should be directed to the Architect through the General Contractor using the form provided at the end of this section. Request for Information forms are used to help clarify and/or interpret the information contained in the contract documents or to resolve construction questions in the field.
   1. The Architect shall respond in writing within three (3) working days of receipt of the RFI. The Architect will promptly advise the Contractor when a Request for Information being processed will be delayed beyond three (3) working days due to a need for additional information, research or coordination. The Contractor should allow sufficient review time so that the work will not be delayed as a result of the time required to process RFI's. No extension of contract time will be authorized because of failure by the Contractor to transmit RFI's to the Architect sufficiently in advance of work to permit processing.
   2. Deductions for Unnecessary or Redundant RFI's: Should the Contractor or the Contractor's subcontractor submit unnecessary or redundant RFI's to the Architect for review, the Architect shall be entitled to bill the Owner at his (Architect's) hourly rate for the additional work generated by the Contractor's inefficiency. The Owner shall then deduct the comparable dollar amount from the payments due the Contractor.

3. Unnecessary and/or Redundant RFI's Include (But Are Not Limited To):
   a. RFI's questioning items or information clearly noted in the contract documents.
   b. RFI's generated as a result of a Contractor's substitution or construction error which requires additional coordination with other related items or a revision to the contract documents.

END OF SECTION

SECTION 01 3060
SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittal Log

B. Preparing and processing of submittals for review and action.

C. Preparing and processing of informational submittals.

1.02 DEFINITIONS

A. "Shop drawings" are drawings and other data prepared, by the entity who is to do the work, specifically to show a portion of the work.

B. "Product data submittals" are standard printed data which show or otherwise describe a product or system, or some other portion of the work.
   1. Product data submittals also include:
      a. Performance curves, when issued by the manufacturer for all products of that type.
      b. Selection data showing standard colors.
      c. Wiring diagrams, when standard for all products of that type.

C. "Samples" are actual examples of the products or work to be installed.

D. Informational Submittals: Submittals identified in the contract documents as to be submitted for information only.

1.03 SUBMITTAL LOG

A. Contractor shall prepare submittal log in format approved by the Architect and School District.

B. As a minimum the submittal log shall list all submittals required by the contract documents, with assigned submittal number, corresponding specification section and description of submittal.

1.04 SUBMITTALS FOR REVIEW

A. Submit the following for the architect's review and action:
   1. Shop drawings.
   2. Structural design information required by the contract documents.
   3. Product data.
   4. Samples.
   5. Submittals indicated as "for approval."
   6. Submittals for which procedures are not defined elsewhere.

B. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.

C. Samples will be reviewed only for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01780 - Closeout Submittals.

1.05 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
   1. Certificates.
   2. Coordination drawings.
   3. Test reports.
   4. Inspection reports.
   5. Manufacturer's instructions.
   6. Manufacturer's field reports.
   7. Qualification statements from manufacturers / installers.
   8. Verified Reports in accordance with Title 24, Part 1, Article 47336, C.C.R.

1.06 SUBMITTALS FOR PROJECT CLOSEOUT

A. When the following are specified in individual sections, submit them at project closeout:
   1. Project record documents.
   2. Operation and maintenance data.
   3. Warranties.
   4. Bonds.
   5. Other types as indicated.

B. Submit for Owner's benefit during and after project completion.

1.07 SUBMITTAL REQUIREMENTS

A. Do not commence work that requires review of any submittals until receipt of returned submittals with an acceptable action.

B. Do not allow submittals without an acceptable action marking to be used for the project.

C. Submit all submittals to the Architect.

D. All Submittals for the project shall be delivered to the Architect's office within five (5) days from the Notice to Proceed.

E. Do not submit substitute items that have not been approved by means of the procedure specified elsewhere.

F. Do not include requests for substitution (either direct or indirect) on submittals; comply with procedures for substitutions specified elsewhere.

G. Related Sections: The following are specified elsewhere in Division 1:
   1. 01200 - PRICE AND PAYMENT PROCEDURES
      a. Payment, modification, and completion submittals.
         1) Applications for payment.
         2) Schedule of values.
         3) Change proposals.
   2. 01325 - CONSTRUCTION PROGRESS SCHEDULE
      a. Progress of work submittals:
         1) Contractor's construction schedules.
   3. 01400 - QUALITY REQUIREMENTS
      a. Quality control submittals:
         1) Inspection reports.
         2) Test reports.
   4. 01600-PRODUCT REQUIREMENTS
      a. Product submittals:
         1) Requests for Substitution.
         2) Maintenance materials and tools.
   5. 01780 - CLOSEOUT SUBMITTALS
      a. Contract closeout submittals:
         1) Equipment and systems demonstration reports.
         2) Operating and maintenance data.
         3) Request for determination of substantial completion.
         4) Project record documents.
         5) Warranties.
         6) Bonds.

1.08 NUMBER OF COPIES OF SUBMITTALS

A. Documents for Review:
   1. Small Size Sheets, Not Larger Than 8-1/2 x 11 inches: Submit the number of copies which the Contractor requires, plus [four] copies which will be retained by the Architect.
   2. Larger Sheets, Not Larger Than 36 x 48 inches: Submit the number of opaque reproductions which Contractor requires, plus [four] copies which will be retained by

Architect.

3. In lieu of hard copy submittals, electronic submittals are acceptable except for material and/or color selection samples.

B. Documents for Information: Submit [three] copies.

C. Documents for Project Closeout: Make one reproduction of submittal originally reviewed. Submit one extra of submittals for information.

D. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
   1. After review, produce duplicates.
   2. Retained samples will not be returned to Contractor unless specifically so stated.

E. Copies in excess of the number requested will not be returned.

F. Provide additional copies, if required for operating and maintenance data, marked to indicate their purpose.

1.09 SUBMITTAL PROCEDURES

A. Coordination:
   1. Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
      a. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
      b. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
      c. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.

B. Processing:
   1. Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals.
      a. For each submittal for review, allow 5 days excluding delivery time to and from the Architect. Allow additional time if processing time must be delayed to permit coordination with subsequent submittals. The Architect shall promptly advise the General Contractor when a submittal being processed must be delayed for coordination.
         1) Exceptions:
            (a) Deferred Approval Submittal through the Division of the State Architect's office. Due to the nature of these submittals, no estimated return date can be given.
            (b) Complicated Shop Drawings may require more than ten days for proper review time and coordination.
            (c) If numerous Submittals are provided within a short period of time, the review time may not be able to be met. In these cases, the Contractor should clearly identify on the Submittal Transmittal which Submittals have the highest priority in terms of the Project Schedule and related construction activities.
      b. If an intermediate submittal is necessary, process the same as the initial submittal.
      c. Allow two weeks for reprocessing each submittal.
      d. When revised for resubmission, identify all changes made since previous submission.
      e. No extension of Contract Time will be authorized because of the failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing and review.

C. Submittal Preparation:
   1. Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.

a. Provide a space approximately 4" x 5" on the label or besides the title block on Shop Drawings to record the Architect's/Engineer's review and approval markings and the action taken.
b. Include the following information on the label for processing and recoding action taken:
    1) Project Name.
    2) Date.
    3) Name and address of Architect.
    4) Name and address of District.
    5) Name and address of Subcontractor.
    6) Name and address of Supplier.
    7) Name of manufacturer.
    8) Number and title of the appropriate Specification Section.
    9) Drawing number and detail references, as appropriate.

D. Submittal Transmittal:
1. Package each submittal appropriately for transmittal and handling. Transmit each submittal from District or General Contractor to Architect using a standard "Submittal Transmittal" form in a format that is acceptable to the Architect and District. Submittals received from sources other than the District or General Contractor will be returned without action.
2. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
3. On the transmittal, record relevant information and requests for data.
4. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
5. Deliver submittals to Architect at business address.
6. Schedule submittals to expedite the Project, and coordinate submission of related items.
7. Identify all variations from Contract Documents, and all Product or system limitations which may be detrimental to successful performance of the completed Work.
    a. Failure to identify all variations and limitations will be cause for retroactive rejection of submittals previously approved.

E. Distribution:
1. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

1.10 COORDINATION OF SUBMITTALS

A. Coordinate submittals and activities that must be performed in sequence, so that the architect has enough information to properly review the submittals.

B. Coordinate submittals of different types for the same product or system so that the architect has enough information to properly review each submittal.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 TIMING OF SUBMITTALS

A. Transmit each submittal at or before the time indicated on the approved schedule of submittals.
1. Prepare and submit for approval a schedule showing the required dates of submittal of all submittals.
2. Organize the schedule by the applicable specification section number.
3. Incorporate the contractor's construction schedule specified elsewhere.
4. ALL SUBMITTALS FOR THE PROJECT SHALL BE DELIVERED TO THE ARCHITECT'S OFFICE WITHIN FIVE (5) DAYS FROM THE NOTICE TO PROCEED.

B. Deliver each submittal requiring approval in time to allow for adequate review and processing time, including resubmittals if necessary; failure of the contractor in this respect will not be

considered as grounds for an extension of the contract time.

C. Deliver each informational submittal prior to start of the work involved, unless the submittal is of a type which cannot be prepared until after completion of the work; submit promptly.

D. Allow a minimum of 5 business days for the first processing of each submittal. Allow more time when submittals must be coordinated with later submittals, or are more technical in nature and require more review and coordination time.

E. Allow a minimum of 3 business days for processing of resubmittals.

F. If a submittal must be delayed for coordination with other submittals not yet submitted, the architect may at his option either return the submittal with no action or notify the contractor of the other submittals, which must be received before the submittal can be reviewed.

3.02 SUBMITTAL PROCEDURES - GENERAL

A. Contractor Review: Sign each copy of each submittal certifying compliance with the requirements of the contract documents.

B. Notify the architect, in writing and at time of submittal, of all points upon which the submittal does not conform to the requirements of the contract documents, if any. All deviations form the Contract Documents must be clearly indicated on the submittal. All submittals for materials or equipment other than that specified must be submitted with properly completed Substitution Request Form.

C. Preparation of Submittals:
   1. Label each copy of each submittal, with the following information:
      a. Project name.
      b. Date of submittal.
      c. Contractor's name and address.
      d. Architect's name and address.
      e. Subcontractor's name and address.
      f. Manufacturer's name.
      g. Specification section where the submittal is specified.
      h. Numbers of applicable drawings and details.
      i. Other necessary identifying information.
   2. Pack submittals suitably for shipment.
   3. Submittals to receive architect's action marking: Provide blank space on the label or on the submittal itself for action marking; minimum 4 inches wide by 5 inches high.

D. Transmittal of Submittals:
   1. Submittals will be accepted from the contractor only. Submittals received from other entities will be returned without review or action.
   2. Submittals received without a transmittal form will be returned without review or action.
   3. Transmittal form: Use a form matching the sample form attached to this section.
   4. Fill out a separate transmittal form for each submittal; also include the following:
      a. Other relevant information.
      b. Requests for additional information.

3.03 SHOP DRAWINGS

A. Content: Include the following information:
   1. Dimensions, at accurate scale.
   2. All field measurements that have been taken, at accurate scale.
   3. Names of specific products and materials used.
   4. Details, identified by contract document sheet and detail numbers.
   5. Show compliance with the specific standards referenced.
   6. Coordination requirements; show relationship to adjacent or critical work.
   7. Name of preparing firm.

B. Preparation:
   1. Reproductions of contract documents are not acceptable as shop drawings.

2. Space for architect's action marking shall be adjacent to the title block.

3.04 PRODUCT DATA

A. Content:
   1. Submit manufacturer's standard printed data sheets.
   2. Identify the particular product being submitted; submit only pertinent pages.
   3. Show compliance with properties specified.
   4. Identify which options and accessories are applicable.
   5. Show compliance with the specific standards referenced.
   6. Show compliance with specified testing agency listings; show the limitations of their labels or seals, if any.
   7. Identify dimensions which have been verified by field measurement.
   8. Show special coordination requirements for the product.

3.05 SAMPLES

A. Samples:
   1. Provide samples that are the same as proposed product.
   2. Where unavoidable variations must be expected, submit "range" samples, minimum of 3 units, and describe or identify variations among units of each set.
   3. Where selection is required, provide full set of all options.

B. Preparation:
   1. Attach a description to each sample.
   2. Attach name of manufacturer or source to each sample.
   3. Where compliance with specified properties is required, attach documentation showing compliance.
   4. Where there are limitations in availability, delivery, or other similar characteristics, attach description of such limitations.
   5. Where selection is required, the first submittal may be a single set of all options; after return of submittal with selection indicated, submit standard number of sets of selected item.

C. Keep final sample set(s) at the project site, available for use during progress of the work.

3.06 REVIEW OF SUBMITTALS

A. Submittals for approval will be reviewed, marked with appropriate action, and returned.
   1. Informational submittals: Submittals will be reviewed.

3.07 RETURN, RESUBMITTAL, AND DISTRIBUTION

A. Submittals will be returned to the contractor by mail.Perform resubmittals in the same manner as original submittals; indicate all changes other than those requested by the architect.

B. Perform resubmittals in the same manner as original submittals; indicate all changes other than those requested by the architect.
   1. Exception: Transmittal number for resubmittals shall be the number of the original submittal plus a letter suffix; example: 05500-1 would become 05500-1 A.

C. Distribution:
   1. Distribute returned submittals to all subcontractors and suppliers involved in work covered by the submittal.
   2. Make one copy for project record documents.

END OF SECTION

SECTION 01 3216
CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preliminary schedule.

B. Construction progress schedule, bar chart type.

1.02 REFERENCES

A. AGC (CPSM) - Construction Planning and Scheduling Manual 2004.

1.03 SUBMITTALS

A. Within 10 days after date of Agreement, submit preliminary schedule defining planned operations for the first 60 days of Work, with a general outline for remainder of Work.

B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.

C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
   1. Include written certification that major contractors have reviewed and accepted proposed schedule.

D. Within 10 days after joint review, submit complete schedule.

E. Submit updated schedule with each Application for Payment.

F. Submit the number of opaque reproductions that Contractor requires, plus three copies that will be retained by Architect. Electronic copies will also be accepted.

G. Submit under transmittal letter form specified in Section 01 3000.

1.04 QUALITY ASSURANCE

A. Scheduler: Contractor's personnel or specialist Consultant specializing in CPM scheduling with one years minimum experience in scheduling construction work of a complexity comparable to this Project, and having use of computer facilities capable of delivering a detailed graphic printout within 48 hours of request.

1.05 SCHEDULE FORMAT

A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.

B. Sheet Size: Multiples of 8-1/2 x 11 inches.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRELIMINARY SCHEDULE

A. Prepare preliminary schedule in the form of a horizontal bar chart.

3.02 CONTENT

A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.

B. Identify each item by specification section number.

C. Identify work of separate stages and other logically grouped activities.

D. Provide sub-schedules for each stage of Work identified in Section 01 1000.

E. Provide sub-schedules to define critical portions of the entire schedule.

F. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.

G. Provide legend for symbols and abbreviations used.

3.03 BAR CHARTS

A. Include a separate bar for each major portion of Work or operation.

B. Identify the first work day of each week.

3.04 UPDATING SCHEDULE

A. Maintain schedules to record actual start and finish dates of completed activities.

B. Indicate progress of each activity to date of revision, with projected completion date of each activity.

C. Annotate diagrams to graphically depict current status of Work.

D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.

E. Indicate changes required to maintain Date of Substantial Completion.

F. Submit reports required to support recommended changes.

3.05 DISTRIBUTION OF SCHEDULE

A. Distribute copies of updated schedules to Contractor's project site file, to Subcontractors, suppliers, Architect, Inspector, Owner, and other concerned parties.

B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

END OF SECTION

SECTION 01 4000
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Control of installation.

B. Testing and inspection Testing services.

C. Manufacturers' field services.

1.02 RELATED REQUIREMENTS

A. Section 01305 - Submittals: Submittal procedures.

B. Section 01 4219 - Reference Standards.

1.03 SUBMITTALS

A. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.
   1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
   2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.

B. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

C. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
   1. Submit report in duplicate within 30 days of observation to Architect for information.
   2. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

D. Erection Drawings: Submit drawings for Architect's benefit as contract administrator or for Owner.
   1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
   2. Data indicating inappropriate or unacceptable Work may be subject to action by Architect or Owner.

1.04 REFERENCES AND STANDARDS - SEE SECTION 01 4219

A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.

C. Obtain copies of standards where required by product specification sections.

D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.

E. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.05 TESTING AND INSPECTION AGENCIES

A. Owner will employ and pay for services of an independent testing agency to perform other specified testing. Refer to Section 01900 - Testing and Inspection Requirements.

B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have Work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 TESTING AND INSPECTION

A. See Specification Section 01900 for testing required.

B. Contractor Responsibilities:
   1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
   2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
   3. Provide incidental labor and facilities:
      a. To provide access to Work to be tested/inspected.
      b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
      c. To facilitate tests/inspections.
      d. To provide storage and curing of test samples.
   4. Notify Architect and laboratory 48 hours prior to expected time for operations requiring testing/inspection services.
   5. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

C. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Architect.

D. Re-testing required because of non-conformance to specified requirements shall be paid for by Contractor.

E. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by the Architect. Payment for re-testing will be charged to the Contractor by deducting testing charges from the Contract Sum/Price.

3.03 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and

balance of equipment and [_____] as applicable, and to initiate instructions when necessary.

B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.04 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not conforming to specified requirements.

B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01 4219
REFERENCE STANDARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements relating to referenced standards.

1.02 QUALITY ASSURANCE

A. For products or workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Should specified reference standards conflict with Contract Documents, request clarification from the Architect before proceeding.

C. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Architect shall be altered by the Contract Documents by mention or inference otherwise in any reference document.

PART 2 CONSTRUCTION INDUSTRY ORGANIZATION DOCUMENTS

2.01 AASHTO -- AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

A. AASHTO GDPS - Guide for Design of Pavement Structures 1993, with Supplement (1998).

B. AASHTO GDPS-3 - Guide for Design of Pavement Structures, Volume 2; 1986.

C. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil–Aggregate Subbase, Base, and Surface Courses 2017 (Reapproved 2021).

D. AASHTO T 27 - Standard Specification for Sieve Analysis of Fine and Course Aggregates; 2006.

2.02 AGC -- ASSOCIATED GENERAL CONTRACTORS OF AMERICA

A. AGC (CPSM) - Construction Planning and Scheduling Manual 2004.

2.03 ASTM B SERIES -- ASTM INTERNATIONAL

A. ASTM B88 - Standard Specification for Seamless Copper Water Tube 2020.

2.04 ASTM D SERIES -- ASTM INTERNATIONAL

A. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)) 2012 (Reapproved 2021).

B. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System) 2017, with Editorial Revision (2020).

C. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth) 2005.

2.05 ASTM E SERIES -- ASTM INTERNATIONAL

2.06 ASTM F SERIES -- ASTM INTERNATIONAL

A. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile 2004 (Reapproved 2018).

B. ASTM F1292 - Standard Specification for Impact Attenuation of Surfacing Materials Within the Use Zone of Playground Equipment 2018, with Editorial Revision (2020).

C. ASTM F1303 - Standard Specification for Sheet Vinyl Floor Covering with Backing 2004 (Reapproved 2021).

2.07 UL -- UNDERWRITERS LABORATORIES INC.

END OF SECTION

SECTION 01 5000
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary utilities.

B. Temporary sanitary facilities.

C. Temporary Controls: Barriers and fencing.

D. Security requirements.

E. Vehicular access and parking.

F. Waste removal facilities and services.

1.02 TEMPORARY UTILITIES

A. Owner will provide the following:
   1. Electrical power, consisting of connection to existing facilities.
   2. Water supply, consisting of connection to existing facilities.

B. Use trigger-operated nozzles for water hoses, to avoid waste of water.

1.03 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization through to project completion.

B. Maintain daily in clean and sanitary condition.

1.04 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.

C. Provide protection for plants designated to remain. Replace damaged plants.

D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.05 FENCING

A. Construction: Commercial grade chain link fence.

B. Provide 6 foot high fence around construction site; equip with vehicular and pedestrian gates with locks as required.

1.06 SECURITY

A. Provide security and facilities to protect Work, existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

1.07 VEHICULAR ACCESS AND PARKING

A. Coordinate access and haul routes with governing authorities and Owner.

B. Provide and maintain access to fire hydrants, free of obstructions.

C. Provide means of removing mud from vehicle wheels before entering streets.

D. Comply with 2019 C.F.C., Chapter 33 during all phases of construction.

1.08 WASTE REMOVAL

A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

B. Provide containers with lids. Remove trash from site weekly.

C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 6000
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General product requirements.

B. Re-use of existing products.

C. Transportation, handling, storage and protection.

D. Product option requirements.

E. Substitution limitations and procedures.

F. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

A. Section 01 4000 - Quality Requirements: Product quality monitoring.

1.03 SUBMITTALS

A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
   1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

D. Indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.

B. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site. However, The Owner has the first right of refusal on all existing materials and equipment indicated to be removed, but not to be re-used.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

B. Do not use products having any of the following characteristics:
   1. Made using or containing CFC's or HCFC's.

C. Provide interchangeable components of the same manufacture for components being replaced.

2.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTIONS DURING THE BIDDING PERIOD

A. Substitution requests submitted later than 7 days prior to the Bid Date will not be considered.

B. Acceptable substitutions will be added to the contract documents by addendum; no verbal approvals will be valid.

3.02 SUBSTITUTIONS AFTER AWARD OF THE CONTRACT

A. Substitutions will not be considered between the Bid date and the Award of the Contract.

B. Substitutions will not be allowed after Award of the Contract except when, through no fault of the Contractor, none of the specified products are available.
   1. Architect will consider requests for substitutions only within 30 days after date of Agreement.

3.03 SUBSTITUTION PROCEDURES

A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.

B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

C. A request for substitution constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
   2. Will provide the same warranty for the substitution as for the specified product.
   3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner, including:
      a. Redesign.
      b. Additional components and capacity required by other work affected by the change.
   4. Waives claims for additional costs or time extension that may subsequently become apparent.

D. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

E. Substitutions will not be considered when submitted directly by subcontractor or supplier.

F. Substitution Submittal Procedure: Submit written request with complete data substantiating compliance of the proposed product with the requirements of the Contract Documents, utilizing the form provided at the end of this section.
   1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
   2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
   3. Substitutions shall be considered as a Change Order, and shall be approved by DSA prior to fabrication or use.
   4. The Architect will notify Contractor in writing of decision to accept or reject request.

G. Data Required with Substitution Request: Provide at least the following data:
   1. Identify product by specification section and paragraph number.
   2. Manufacturer's name and address, trade name and model number of product (if applicable), and name of the fabricator or supplier (if applicable).
   3. Complete Product Data.

4. A list of other projects on which the proposed product has been used, with Project Name, the Design Professionals name, and Owner contact.
5. A itemized side-by-side comparison of the proposed product to the specified product.
6. Net amount of change to the contract sum.
7. List of maintenance services and replacement materials available.
8. Statement of the effect of the substitution on the construction schedule.
9. Description of changes that will be required in other work or products if the substitute product is approved.

H. The Architect will determine the acceptability of the proposed substitution.

I. There are certain items and/or products that are specified for this project that are District Standards, where no substitutions will be accepted. If this is the case, the Substitution Request related to a District Standard shall be responded to stating such fact.

J. When the proposed substitution is accepted, provide the product (or one of the products, as the case may be) specified.

3.04 TRANSPORTATION AND HANDLING

A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

B. Transport and handle products in accordance with manufacturer's instructions.

C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.05 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

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

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

G. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

H. Prevent contact with material that may cause corrosion, discoloration, or staining.

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

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

END OF SECTION

SECTION 01 7000
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Requirements for alterations work, including selective demolition, except removal, disposal, and/or remediation of hazardous materials and toxic substances.

C. Pre-installation meetings.

D. Cutting and patching.

E. Cleaning and protection.

F. Starting of systems and equipment.

G. Demonstration and instruction of Owner personnel.

H. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

A. Section 01305 - Submittals: Submittal procedures.

B. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.

1.03 SUBMITTALS

A. See Section 01305 - Submittals, for submittal procedures.

B. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
   1. Structural integrity of any element of Project.
   2. Integrity of weather exposed or moisture resistant element.
   3. Efficiency, maintenance, or safety of any operational element.
   4. Visual qualities of sight exposed elements.
   5. Work of Owner or separate Contractor.

1.04 PROJECT CONDITIONS

A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

D. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.

E. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.

F. Rodent Control: Provide methods, means, and facilities to prevent rodents from accessing or invading premises.

1.05 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Notify affected utility companies and comply with their requirements.

C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

F. Coordinate completion and clean-up of work of separate sections.

G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 6000.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Architect seven days in advance of meeting date.

D. Prepare agenda and preside at meeting:
   1. Review conditions of examination, preparation and installation procedures.
   2. Review coordination with related work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

A. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
   1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
   2. Grid or axis for structures.

B. Periodically verify layouts by same means.

3.05 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as shown.
   2. Report discrepancies to Architect before disturbing existing installation.
   3. Beginning of alterations work constitutes acceptance of existing conditions.

B. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.
   2. Relocate items indicated on drawings.
   3. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
   4. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

C. Services (Including but not limited to irrigation and irrigation): Remove, relocate, and extend existing systems to accommodate new construction.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
   2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
   3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
      a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
      b. Provide temporary connections as required to maintain existing systems in service.
   4. Verify that abandoned services serve only abandoned facilities.
   5. Remove abandoned pipe, ducts, conduits, and equipment ; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

D. Protect existing work to remain.
   1. Prevent movement of structure; provide shoring and bracing if necessary.

2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
3. Repair adjacent construction and finishes damaged during removal work.
4. Patch as specified for patching new work.

E. Adapt existing work to fit new work: Make as neat and smooth transition as possible.

F. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.

G. Refinish existing surfaces as indicated:

H. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.

I. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.
1. Patch as specified for patching new work.

J. Clean existing systems and equipment.

K. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

L. Do not begin new construction in alterations areas before demolition is complete.

M. Comply with all other applicable requirements of this section.

3.07 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. See Alterations article above for additional requirements.

C. Perform whatever cutting and patching is necessary to:
1. Complete the work.
2. Fit products together to integrate with other work.
3. Match work that has been cut to adjacent work.
4. Repair areas adjacent to cuts to required condition.
5. Repair new work damaged by subsequent work.
6. Remove samples of installed work for testing when requested.
7. Remove and replace defective and non-conforming work.

D. Execute cutting and patching including excavation and fill to complete the work, to uncover work in order to install improperly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to provide openings in the work for penetration of mechanical and electrical work, to execute patching to complement adjacent work, and to fit products together to integrate with other work.

E. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

F. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

G. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

H. Restore work with new products in accordance with requirements of Contract Documents.

I. Patching:
1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
2. Match color, texture, and appearance.
3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair

substrate prior to repairing finish.

J. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

K. Make neat transitions. Patch work to match adjacent work in texture and appearance. Where new work abuts or aligns with existing, perform a smooth and even transition.

L. Patch or replace surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. Repair substrate prior to patching finish. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

3.08 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.09 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.10 DEMONSTRATION AND INSTRUCTION

A. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of Substantial Completion.

B. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of owner personnel.

C. 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.

D. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

3.11 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.12 FINAL CLEANING

A. Execute final cleaning after Substantial Completion but before making final application for payment.

B. Use cleaning materials that are nonhazardous.

C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

E. Clean site; sweep paved areas, rake clean landscaped surfaces.

F. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.13 MAINTENANCE

A. Provide service and maintenance of components indicated in specification sections.

B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty,

whichever is longer.

C. Furnish service and maintenance of components indicated in specification sections for one year from date of Substantial Completion.

D. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

E. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

F. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION

SECTION 01 7450
CLEANING

PART 1 GENERAL

1.01 SCOPE

A. Throughout the construction period, maintain the buildings and site in a standard of cleanliness as described in this Section.

1.02 RELATED WORK

A. In addition to standards described in this Section, comply with requirements for cleaning as described in pertinent other Sections of these Specifications.

1.03 QUALITY ASSURANCE

A. Conduct daily inspections, and more often if necessary, to verify that requirements for cleanliness are being met.

B. In addition to the standards described in this Section, comply with pertinent requirements of governmental agencies having jurisdiction.

PART 2 PRODUCTS

2.01 CLEANING MATERIALS AND EQUIPMENT

A. Provide required personnel, equipment, and materials needed to maintain the specified standard of cleanliness.

2.02 COMPATIBILITY

A. Use only the cleaning materials and equipment, which are compatible with the surface being cleaned, as recommended by the manufacturer of the material.

PART 3 EXECUTION

3.01 PROGRESS CLEANING

A. General:
   1. Retain stored items in an orderly arrangement allowing maximum access, not impeding traffic or drainage, and providing required protection of materials.
   2. Do not allow accumulation of scrap, debris, waste material, and other items not required for construction of this Work.
   3. At least twice each month, and when requested by the District Representative, completely remove all scrap, debris, and waste material from the job site.
   4. Provide adequate storage for all items awaiting removal from the job site, observing requirements for fire protection and protection of the ecology.

B. Site:
   1. Daily, and more often if necessary, inspect the site and pick up all scrap, debris, and waste material. Remove such items to the place designated for their storage.
   2. Weekly, and more often, if necessary, inspect all arrangements of materials stored on the site. Restack, tidy, or otherwise service arrangements to meet the requirements of subparagraph 3.01 A above.
   3. Maintain the site in a neat and orderly condition at all times.

3.02 FINAL CLEANING

A. "Clean", for the purpose of this Article, and except as may be specifically provided otherwise, shall be interpreted as meaning the level of cleanliness generally provided by skilled cleaners using commercial quality building maintenance equipment and materials.

B. Prior to completion of the Work, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste. Conduct final progress cleaning as described in Article 3.01 above.

C. Site:
   1. Unless otherwise specifically directed by the Construction Manager, broom clean paved areas on the site and public paved areas adjacent to the site.

2. Completely remove resultant debris.

D. Schedule final cleaning as approved by the Architect to enable the District to accept a completely clean Work.

3.03 CLEANING DURING DISTRICT'S OCCUPANCY

A. Should the District occupy the Work or any portion thereof prior to its completion by the Trade Contractor and acceptance by the District, responsibilities for interim and final cleaning shall be as determined by the Architect in accordance with the General Conditions of the Contract.

3.04 TRADE CONTRACTOR RESPONSIBILITY FOR MISUSE OF MATERIALS

A. Should construction materials or debris created by the construction process not be properly stored in a secure area or placed in the proper secured debris containers and such materials are used in acts of vandalism, the contractor shall be responsible to the District and adjacent property Districts for the repair or replacement of items damaged in such vandalism.

END OF SECTION

SECTION 01 7750
PROJECT CLOSEOUT

PART 1 GENERAL

1.01 SUMMARY

A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:
   1. Requirements preparatory to Final Inspection.
   2. Final Inspection Procedures.

B. The work includes performing all operations necessary for and properly incidental to closing out the project and assisting in Owner's final inspection as hereinafter specified. The Conditions of the Contract and the other sections of Division 1 apply to this section as fully as if repeated herein.

C. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 16.

1.02 RELATED SECTIONS

A. 01200 - Price and Payment Procedures; Procedures for preparation and submittal of application for final payment.

B. 01700 - Execution Requirements; Starting of systems and equipment and demonstration and instruction of Owner personnel.

C. 01740 - Cleaning; Final cleaning requirements.

D. 01780 - Closeout Submittals; Project Record Documents, Operation and Maintenance Data and Warranties and Bonds.

1.03 REQUIREMENTS PREPARATORY TO FINAL INSPECTION

A. All temporary facilities shall be removed from the site as specified in Division 01500 sections.

B. The site shall be thoroughly cleaned as specified in Section 01740.

C. Record (As-built) Drawings shall be completed, signed, and submitted to the Architect as specified in Section 01780 - Closeout Submittals.

D. The Material and Equipment maintenance instructions, as specified in the body of the Specifications, shall be submitted to the Architect.

E. All guarantees and warranties shall be submitted to the Architect as specified in the General Conditions, and Section 01780 - Closeout Submittals.

1.04 FINAL INSPECTION PROCEDURES

A. After all requirements preparatory to the final inspection have been completed as herein before specified, the Contractor shall notify the Architect to perform the final inspection. Notice shall be given at least one week of the time the final inspection is to be performed.

B. On receipt of a request for inspection, the Architect will either proceed with inspection or advise the Contractor of unfulfilled requirements. The Architect will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor by preparing a punch list of construction that must be completed or corrected before the certificate will be issued.

C. The Contractor or his principal superintendent, authorized to act in behalf of the Contractor, shall accompany the Architect, Consultants and Owner on the final inspection tour, as well as principal subcontractors that the Architect, Consultants or Owner may request to be present.

D. If the work has been completed in accordance with the Contract Documents, and no further corrective measures are required, the Owner will accept the Project and will include the Notice of Completion on the next Board Agenda for approval by the Board of Trustees.

E. Failure to include an item on the Punch List does not alter the responsibility of Contractor to complete all Work in accordance with the Contract Documents.

F. If the work has not been substantially completed in accordance with the Contract Documents, and numerous corrective measures are still required, the Owner will not accept the Project nor file for the Notice of Completion. Instead, a Punch List will be prepared, based on the information gathered from the final inspection, and the Contractor will be required to complete this work and then call for another final inspection, following the procedures outlined above.

G. The Architect will repeat inspection when requested and assured that the Work has been substantially completed. If the re-inspection discloses any item not included on the initial Punch List the Contractor shall add these items to the Punch List.

H. Results of the completed inspection will form the basis of requirements for final acceptance.

1.05 FINAL ACCEPTANCE

A. PRELIMINARY PROCEDURES:
   1. Submit final payment request in compliance with Article 37 of the General Conditions.
   2. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Architect.
   3. Submit consent of surety to final payment.
   4. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
   5. Submit evidence that DSA Form 6-C Contractor's Verified Report has been filed with the Division of the State Architect.

END OF SECTION

SECTION 01 7800
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.

B. Operation and Maintenance Data.

C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

A. Section 01305 - Submittals: Submittal procedures, shop drawings, product data, and samples.

B. Section 01 7000 - Execution and Closeout Requirements: Contract closeout procedures.

C. Individual Product Sections: Specific requirements for operation and maintenance data.

D. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.

B. Operation and Maintenance Data:
   1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
   2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
   3. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
   4. Submit two sets of revised final documents in final form within 10 days after final inspection.

C. Warranties and Bonds:
   1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
   2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
   3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.
   5. Reviewed shop drawings, product data, and samples.
   6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:

1. Manufacturer's name and product model and number.
2. Product substitutions or alternates utilized.
3. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Prepare a full set of transparencies of contract drawings with all record changes marked.
      a. The architect will furnish to the contractor transparencies (erasable vellums) of the original contract drawings at the cost of $10.00 (ten dollars) per sheet.
   2. Measured depths of foundations in relation to finish first floor datum.
   3. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   4. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
   5. Field changes of dimension and detail.
   6. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:
   1. Product data, with catalog number, size, composition, and color and texture designations.
   2. Information for re-ordering custom manufactured products.

B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. For Each Item of Equipment and Each System:
   1. Description of unit or system, and component parts.
   2. Identify function, normal operating characteristics, and limiting conditions.
   3. Include performance curves, with engineering data and tests.
   4. Complete nomenclature and model number of replaceable parts.

B. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

C. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

D. Provide servicing and lubrication schedule, and list of lubricants required.

E. Include manufacturer's printed operation and maintenance instructions.

F. Include sequence of operation by controls manufacturer.

G. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

H. Additional Requirements: As specified in individual product specification sections.

3.05 OPERATION AND MAINTENANCE MANUALS

A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

B. Prepare data in the form of an instructional manual.

C. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

E. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.

F. Text: Manufacturer's printed data, or typewritten data on 24 pound paper.

G. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

H. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.

I. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, in three parts as follows:
   1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Contractor, Subcontractors, and major equipment suppliers.
   2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
      a. Significant design criteria.
      b. List of equipment.
      c. Parts list for each component.
      d. Operating instructions.
      e. Maintenance instructions for equipment and systems.
      f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
   3. Part 3: Project documents and certificates, including the following:
      a. Shop drawings and product data.
      b. Air and water balance reports.
      c. Certificates.
      d. Photocopies of warranties and bonds.

J. Provide a listing in Table of Contents for design data, with tabbed dividers and space for insertion of data.

3.06 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

E. Manual: Bind in commercial quality 8-1/2 by 11 inch three D side ring binders with durable plastic covers.

F. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.

G. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.

H. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

END OF SECTION

SECTION 01 9100
TESTING AND INSPECTION REQUIREMENTS

PART 1 GENERAL

1.01 RELATED SECTIONS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.02 QUALITY ASSURANCE

A. Testing Laboratory Services:
   1. The owner will engage an independent testing agency to conduct tests and perform other services required for quality assurance.

1.03 TESTS

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.

1.04 TEST REPORTS

A. One copy of all test reports shall be forwarded to the Owner, Architect, Structural Engineer, Inspector of Record (IOR), and Contractor by the testing agency. Such reports shall include all 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 the requirements.

1.05 VERIFICATION OF TEST REPORTS

A. Each testing agency shall submit to the Architect a verified report in duplicate covering all of the tests which are required to be made by that agency during the progress of the project. Such reports shall be furnished each time that work on the project is suspended, covering the tests up to that time, and at the completion of the project, covering all tests.

1.06 INSPECTION BY THE OWNER

A. The Owner and his representatives shall at all times have access for the purpose of inspection to all parts of the work and to the shops wherein the work is in preparation. The Contractor shall at all times maintain proper facilities and provide safe access for such inspection. The Owner shall have the right to reject materials and workmanship, which are defective, or 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 work within a reasonable time, fixed by written notice, the Owner may correct same and charge the expense to the Contractor. 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 all necessary facilities, labor and materials. If such work is found to be defective in any respect due to fault of the Contractor or his subcontractor, he shall defray all 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 shall be allowed the Contractor.

1.07 INSPECTOR - OWNER'S

A. An Inspector employed by the Owner will be assigned to the work. The work of construction in all stages of progress shall be subject to the personal continuous observation of the Inspector. He/she shall have free access to any or all parts of the work at any time. The Contractor shall furnish the Inspector reasonable facilities for obtaining such information as may be necessary

to keep him/her fully informed respecting the progress and manner of the work and character of the materials. Inspection of the work shall not relieve the Contractor from any obligation to fulfill this Contract.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 02 4100
DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Selective demolition of built site elements.

1.02 RELATED REQUIREMENTS

A. Section 01 1000 - Summary: Limitations on Contractor's use of site and premises.

B. Section 01 5000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.

C. Section 01 7000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.

D. Section 31 2200 - Grading: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

1.03 REFERENCE STANDARDS

A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards current edition.

1.04 PROJECT CONDITIONS

A. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

B. Comply with other requirements specified in Section 01 7000.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.01 SCOPE

A. Remove paving and site improvements as indicated on drawings, within these specifications, and/or as required to accomplish new work, if reasonably identifiable through visual observation whether specifically identified or not.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with other requirements specified in Section 01 7000.

B. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. All demolition shall comply with California Building Code Chapter 33 and California Fire Code Chapter 33.
   2. Obtain required permits.
   3. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   4. Provide, erect, and maintain temporary barriers and security devices.
   5. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
   6. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
   7. Do not close or obstruct roadways or sidewalks without permit.
   8. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
   9. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

C. Do not begin removal until receipt of notification to proceed from Owner.

D. Protect existing structures and other elements that are not to be removed.
   1. Provide bracing and shoring.
   2. Prevent movement or settlement of adjacent structures.
   3. Stop work immediately if adjacent structures appear to be in danger.

E. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

F. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

G. Perform demolition in a manner that maximizes salvage and recycling of materials.
   1. Dismantle existing construction and separate materials.
   2. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

H. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

3.03 EXISTING UTILITIES

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.

E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.

F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary. Contractor shall be responsible and shall pay for all services required for locating all existing underground utilities within the area of work.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

3.04 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Remove from site all materials not to be reused on site; do not burn or bury.

C. Leave site in clean condition, ready for subsequent work.

D. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 03 3000
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete formwork.

B. Concrete reinforcement.

C. Concrete curing.

1.02 REFERENCE STANDARDS

A. Title 24, Part 2, C.C.R., 2019 California Building Code (2018 I.B.C. w/ California Amendments); Chapter 19A.

B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete 1991 (Reapproved 2009).

C. ACI 301 - Specifications for Concrete Construction 2020.

D. ACI 302.1R - Guide to Concrete Floor and Slab Construction 2015.

E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete 2000 (Reapproved 2009).

F. ACI 305R - Guide to Hot Weather Concreting 2020.

G. ACI 306R - Guide to Cold Weather Concreting 2016.

H. ACI 308R - Guide to External Curing of Concrete 2016.

I. ACI 318 - Building Code Requirements for Structural Concrete 2019, with Errata (2021).

J. ASTM A185/A185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete; 2007.

K. ASTM C33/C33M - Standard Specification for Concrete Aggregates 2018.

L. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete 2022.

M. ASTM C150/C150M - Standard Specification for Portland Cement 2022.

N. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete 2010a (Reapproved 2016).

O. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete 2019.

P. ASTM C330/C330M - Standard Specification for Lightweight Aggregates for Structural Concrete 2017a.

Q. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete 2019.

R. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete 2019.

S. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink) 2020.

T. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types) 2018.

U. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs 2017.

1.03 SUBMITTALS

A. See Section 01305 - Submittals, for submittal procedures.

B. Quality Control Submittals: Submit the following information related to quality assurance requirements specified:

1. Design data: Submit proposed mix designs and test data before concrete operations begin. Identify for each mix submitted the method by which proportions have been selected.
   a. For mix designs based on field experience, include individual strength test results, standard deviation, and required average compressive strength f(cr) calculations. Provide 30 test results from the previous 12 months from the date of the concrete pour.
   b. Indicate quantity of each ingredient per cubic yard of concrete.
   c. Indicate type and quantity of admixtures proposed or required.
2. Certifications: Submit affidavits from an independent testing agency certifying that all materials furnished under this section conform to specifications.

1.04 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.

B. Acquire cement from same source and aggregate from same source for entire project.

C. Follow recommendations of ACI 305R when concreting during hot weather.
   1. Well in advance of proposed concreting operations, advise the architect of planned protective measures including but not limited to cooling of materials before or during mixing, placement during evening to dawn hours, fogging during finishing and curing, shading, and windbreaks.

D. Follow recommendations of ACI 306R when concreting during cold weather.

PART 2 PRODUCTS

2.01 FORMWORK

A. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
   1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance.
   2. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
   3. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches of concrete surface.

2.02 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M Grade 60 (420).
   1. Type: Deformed billet-steel bars.
   2. Finish: Unfinished.

B. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gage.
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

2.03 CONCRETE MATERIALS

A. Cement: ASTM C150, Type II - Moderate Portland type.
   1. Acquire all cement for entire project from same source.

B. Fine and Coarse Aggregates: ASTM C 33.
   1. Acquire all aggregates for entire project from same source.

C. Fly Ash: ASTM C618, Class N or F.

D. Water: Clean and not detrimental to concrete.

2.04 ADMIXTURES

A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

B. Air Entrainment Admixture: ASTM C260.

C. Water Reducing Admixture: ASTM C494/C494M Type A.

2.05 ACCESSORY MATERIALS

A. Chemical Hardener: Fluosilicate solution designed for densification of cured concrete slabs.

B. Liquid Curing Compound: ASTM C 309, Type 1, clear or translucent.
   1. Non-yellowing formulation where subject to ultraviolet light.
   2. Where compounds are proposed for use on surfaces to which finishes, coatings, or coverings subsequently will be applied, compound shall possess demonstrated compatibility with finish, coating, or covering, and use shall be subject to approval of the architect.

2.06 BONDING AND JOINTING PRODUCTS

A. Joint Filler: Nonextruding, resilient asphalt impregnated fiberboard or felt, complying with ASTM D 1751, 1/4 inch thick and 4 inches deep ; tongue and groove profile.

2.07 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with the 2019 California Building Code, Chapter 19A.

B. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

C. Normal Weight Concrete:
   1. Compressive Strength, when tested in accordance with ASTM C 39/C 39M at 28 days: As indicated on Sheet S1.0 in the Drawings.
   2. Water-Cement Ratio: 57 maximum.
   3. Maximum Aggregate Size: 1 inch.

D. Admixtures:
   1. Air-entraining admixture: Add at rate to achieve specified air content.
      a. Do not use in slabs-on-grade scheduled to receive topping, unless manufacturer of topping recommends use over air-entrained concrete.
   2. Water-reducing admixture: Add as required for placement and workability.
   3. Water-reducing and retarding admixture: Add as required in concrete mixes to be placed at ambient temperatures above 90 degrees F.
   4. Do not use admixtures not specified or approved.

E. Design mixes to meet or exceed each requirement specified. Where more than one criterion is specified, the most stringent shall apply. For example, a minimum cement content or maximum water-cement ratio might result in strengths greater than the minimum specified; likewise, a greater cement content or lower water-cement ratio may be required in order to achieve the required strength.

2.08 CONTROL OF MIX IN THE FIELD

A. Slump: A tolerance of up to 1 inch above that specified will be permitted for 1 batch in 5 consecutive batches tested. Concrete of lower slump than that specified may be used, provided proper placing and consolidation is obtained.
   1. If slump upon arrival at the site is lower than 1 inch below the value specified, one addition of water in accordance with ASTM C 94 will be permitted to bring slump within tolerance, provided that:
      a. A positive means is available to measure the amount of water added at the site.
      b. The specified (or approved) maximum water-cement ratio is not exceeded.
      c. Not more than 45 minutes have elapsed since batching.

B. Total Air Content: A tolerance of plus or minus 1-1/2 percent of that specified will be allowed for field measurements.
   1. Do not use batches that exceed tolerances.

2.09 MIXING

A. Transit Mixers: Comply with ASTM C94/C94M.

1. At ambient temperatures of 85 to 90 degrees F, reduce mixing and delivery time to 75 minutes.
2. At ambient temperatures above 90 degrees F, reduce mixing and delivery time to 60 minutes.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.

B. Verify that forms are clean and free of rust before applying release agent.

C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

3.03 INSTALLATION OF EMBEDDED ITEMS

A. General: Set anchorage devices and other items required for other work connected to or supported by cast-in-place concrete, using templates, setting drawings, and instructions from suppliers of items to be embedded.
   1. Edge Forms and Screeds: Set edge forms and intermediate screeds as necessary to achieve final elevations indicated for finished slab surfaces.

3.04 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Preparation: Provide materials necessary to ensure adequate protection of concrete during inclement weather before beginning installation of concrete.

C. Inspection: Before beginning concrete placement, inspect formwork, reinforcing steel, and items to be embedded, verifying that all such work has been completed.
   1. Wood forms: Moisten immediately before placing concrete in locations where form coatings are not used.

D. Placement - General: Comply with requirements of ACI 304 and as follows:
   1. Schedule continuous placement of concrete to prevent the formation of cold joints.
   2. Provide construction joints if concrete for a particular element or component cannot be placed in a continuous operation.
   3. Deposit concrete as close as possible to its final location, to avoid segregation.

E. Placement in Forms: Limit horizontal layers to depths which can be properly consolidated, but in no event greater than 24 inches.
   1. Consolidate concrete by means of mechanical vibrators, inserted vertically in freshly placed concrete in a systematic pattern at close intervals. Penetrate previously placed concrete to ensure that separate concrete layers are knitted together.
   2. Vibrate concrete sufficiently to achieve consistent consolidation without segregation of coarse aggregates.
   3. Do not use vibrators to move concrete laterally.

F. Hot Weather Placement: Comply with recommendations of ACI 305R when ambient temperature before, during, or after concrete placement is expected to exceed 90 degrees F or when combinations of high air temperature, low relative humidity, and wind speed are such that the rate of evaporation from freshly poured concrete would otherwise exceed 0.2 pounds per square foot per hour.
   1. Do not add water to approved concrete mixes under hot weather conditions.
   2. Provide mixing water at lowest feasible temperature, and provide adequate protection of poured concrete to reduce rate of evaporation.
   3. Use fog nozzle to cool formwork and reinforcing steel immediately prior to placing concrete.

G. Ensure reinforcement, inserts, and embedded parts will not be disturbed during concrete placement.

3.05 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.
   1. Remove honeycombed areas and other defective concrete down to sound concrete, cutting perpendicular to surface or slightly undercutting. Dampen patch location and area immediately surrounding it prior to applying bonding compound or patching mortar.
   2. Before bonding compound has dried, apply patching mixture matching original concrete in materials and mix except for omission of coarse aggregate, and using a blend of white and normal portland cement as necessary to achieve color match. Consolidate thoroughly and strike off slightly higher than surrounding surface.

B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.

C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
   1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.

3.06 CURING AND PROTECTION

A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Surfaces Not in Contact with Forms:
   1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
   2. Final Curing: Begin after initial curing but before surface is dry.
      a. Curing Compound: Apply in two coats at right angles, using application rate recommended by manufacturer.

3.07 REMOVAL OF FORMS:

A. Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.

3.08 RE-USE OF FORMS:

A. Clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated, or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new formwork.

B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to Architect.

3.09 CONCRETE SURFACE REPAIRS:

A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Architect.

B. Cut out honeycomb, rock pockets, voids over 1/4" in any dimension, and holes left by tie rods and bolts, down to solid concrete but, in no case to a depth of less than 1". Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush?coat the area to be patched with specified bonding agent. Place patching mortar after bonding compound has dried.

C. For exposed-to-view surfaces, blend white portland cement and standard portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar in place and strike?off slightly higher than surrounding surface.

D. Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Architect. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets; fins and other projections on surface; and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with dry pack mortar, or precast cement cone plugs secured in place with bonding agent.

E. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.

F. Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness using a template having required slope.

G. Repair finished unformed surfaces that contain defects which affect durability of concrete. Surface defects, as such, include crazing, cracks in excess of 0.01" wide or which penetrate to reinforcement or completely through non?reinforced sections regardless of width, spalling, pop?outs, honeycomb, rock pockets, and other objectionable conditions.

H. Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days.

I. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to Architect.

J. Repair defective areas, except random cracks and single holes not exceeding 1" diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean square cuts and expose reinforcing steel with at least 3/4" clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete

3.10 DEFECTIVE CONCRETE

A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

B. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

C. Nondestructive testing devices such as impact hammer or sonoscope may be used at architect's option for assistance in determining probable concrete strength at various locations or for selecting areas to be cored, but such tests shall not be the sole basis for acceptance or rejection.

END OF SECTION

SECTION 04 2900
ENGINEERED UNIT MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete Block.

B. Mortar and Grout.

C. Reinforcement and Anchorage.

1.02 REFERENCE STANDARDS

A. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures 2016.

B. ACI 530.1/ASCE 6/TMS 602 - Specification For Masonry Structures; American Concrete Institute International; 2008.

C. ASTM A82/A82M - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement; 2007.

D. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.

E. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units 2022.

F. ASTM C140/C140M - Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units 2022b.

G. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry 2020.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data for masonry units and mortar and grout.

1.04 QUALITY ASSURANCE

A. Comply with provisions of TMS 402/602, except where exceeded by requirements of the contract documents.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

C. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

1.06 FIELD CONDITIONS

A. Cold and Hot Weather Requirements: Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:
   1. Size: Standard units with nominal face dimensions of 16 x 8 inches and nominal depth of 8 inches.
   2. Load-Bearing Units: ASTM C90, medium weight.
      a. Hollow block, as indicated.
      b. Exposed faces: Manufacturer's standard color and texture where indicated.

2.02 MORTAR AND GROUT MATERIALS

A. Masonry Cement: ASTM C91 Type S.

B. Portland Cement: ASTM C150, Type I; color as required to produce approved color sample.
   1. Grout Aggregate: ASTM C404.

C. Water: Clean and potable.

2.03 REINFORCEMENT AND ANCHORAGE

A. Reinforcing Steel: ASTM A615/A615M Grade 60 (420).
   1. Deformed billet-steel bars.
   2. Unfinished.

2.04 MORTAR MIXES

A. Mortar for Unit Masonry: ASTM C270, using the Proportion Specification.
   1. Engineered masonry: Type S.

2.05 MORTAR MIXING

A. Maintain sand uniformly damp immediately before the mixing process.

B. Do not use anti-freeze compounds to lower the freezing point of mortar.

C. If water is lost by evaporation, re-temper only within two hours of mixing.

2.06 GROUT MIXES

A. Engineered Masonry: 2,000 psi strength at 28 days; 8-10 inches slump; provide premixed type in accordance with ASTM C 94/C 94M.

2.07 GROUT MIXING

A. Mix grout in accordance with ASTM C94/C94M.

B. Thoroughly mix grout ingredients in quantities needed for immediate use in accordance with ASTM C476 for fine and coarse grout.

C. Do not use anti-freeze compounds to lower the freezing point of grout.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive masonry.

B. Verify that related items provided under other sections are properly sized and located.

C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.02 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

B. Clean reinforcement of loose rust.

3.03 COURSING

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Concrete Masonry Units:
   1. Bond: Running.
   2. Coursing: One unit and one mortar joint to equal 8 inches.
   3. Mortar Joints: Concave.

3.04 PLACING AND BONDING

A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

B. Lay hollow masonry units with face shell bedding on head and bed joints.

C. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.

D. Remove excess mortar as work progresses.

E. Interlock intersections and external corners, except for units laid in stack bond.

F. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

G. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

H. Cut mortar joints flush where wall tile is scheduled or resilient base is scheduled.

3.05 REINFORCEMENT AND ANCHORAGE

A. Reinforcement Bars: Secure at locations indicated and to avoid displacement during grouting. Minimum spacing between bars or to masonry surfaces shall be one bar diameter.
   1. Welding of splices is not permitted.

B. Reinforced Hollow Unit Masonry: Keep vertical cores to be grouted clear of mortar, including bed area of first course.

3.06 GROUTING

A. Perform all grouting by means of low-lift technique. Do not employ high-lift grouting.

3.07 TOLERANCES

A. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.

B. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.

C. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch.

3.08 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000.

B. Concrete Masonry Unit Tests: Test each variety of concrete unit masonry in accordance with ASTM C140 for conformance to requirements of this specification.

C. Mortar Tests: Test each type of mortar in accordance with recommended procedures in ASTM C780, testing with same frequency as masonry samples.

3.09 CLEANING

A. Remove excess mortar and mortar smears as work progresses.

B. Use non-metallic tools in cleaning operations.

END OF SECTION

SECTION 07 1300
SHEET WATERPROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Self-adhered modified bituminous sheet membrane.

1.02 REFERENCE STANDARDS

A. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension 2016 (Reapproved 2021).

B. ASTM D570 - Standard Test Method for Water Absorption of Plastics 1998 (Reapproved 2018).

C. ASTM D882 - Standard Test Method for Tensile Properties of Thin Plastic Sheeting 2018.

D. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection 2021.

E. ASTM D4541 - Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers 2022.

F. ASTM D5385/D5385M - Standard Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes 2020.

G. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials 2022.

H. NRCA (WM) - The NRCA Waterproofing Manual 2021.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data for membrane.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.05 FIELD CONDITIONS

A. Maintain ambient temperatures above 40 degrees F for 24 hours before and during application and until liquid or mastic accessories have cured.

1.06 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 SHEET WATERPROOFING APPLICATIONS

A. Self-Adhered Modified Bituminous Sheet Membrane:
   1. Location: At retaining wall.
   2. Cover with protection board.

2.02 SHEET WATERPROOFING MATERIALS

A. Self-Adhered Modified Bituminous Sheet Membrane:
   1. Thickness: 60 mil, 0.060 inch, minimum.
   2. Sheet Width: 36 inches, minimum.
   3. Tensile Strength:
      a. Film: 5,000 psi, minimum, measured in accordance with ASTM D882 and at grip-separation rate of 2 inches per minute.
      b. Membrane: 325 psi, minimum, measured in accordance with ASTM D412 Method A, using die C and at spindle-separation rate of 2 inches per minute.

4. Elongation at Break: 300 percent, minimum, measured in accordance with ASTM D412.
5. Water Vapor Permeance: 0.05 perm, maximum, measured in accordance with ASTM E96/E96M.
6. Low Temperature Flexibility: Unaffected when tested in accordance with ASTM D1970/D1970M at minus 20 degrees F, 180 degree bend on 1 inch mandrel.
7. Adhesion: 150 psi, minimum, measured in accordance with ASTM D4541.
8. Water Absorption: 0.1 percent increase in weight, maximum, measured in accordance with ASTM D570, 24 hour immersion.
9. Hydrostatic Pressure Resistance: Membrane resists leakage for at least one hour from pressure equivalent to 200 feet head of water applied in accordance with test method ASTM D5385/D5385M.
10. Adhesives, Sealants, Tapes, and Accessories: As recommended by membrane manufacturer.
11. Products:
    a. Carlisle Coatings & Waterproofing Inc; MiraDRI 860/861: www.carlisleccw.com/#sle.
    b. Henry Company; Blueskin WP 200: www.henry.com/#sle.
    c. W.R. Meadows, Inc; MEL-ROL: www.wrmeadows.com/#sle.
    d. Substitutions: See Section 01 6000 - Product Requirements.

2.03 ACCESSORIES

A. Seaming Materials: As recommended by membrane manufacturer.

B. Membrane Sealant: As recommended by membrane manufacturer.

C. Sealant for Cracks and Joints In Substrates: Resilient elastomeric joint sealant compatible with substrates and waterproofing materials.

D. Protection Board: Provide type capable of preventing damage to waterproofing due to backfilling and construction traffic.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions are acceptable prior to starting work.

B. Verify substrate surfaces are durable; free of matter detrimental to adhesion or application of waterproofing system.

3.02 PREPARATION

A. Protect adjacent surfaces from damage not designated to receive waterproofing.

B. Clean and prepare surfaces to receive waterproofing in accordance with manufacturer's instructions; vacuum substrate clean.

C. Do not apply waterproofing to surfaces unacceptable to membrane manufacturer.

D. Fill nonmoving joints and cracks with a filler compatible with waterproofing materials.

E. Seal moving cracks with sealant and nonrigid filler, using procedures recommended by sealant and waterproofing manufacturers.

3.03 INSTALLATION - MEMBRANE

A. Install membrane waterproofing in accordance with manufacturer's instructions and NRCA (WM) applicable requirements.

B. Roll out membrane, and minimize wrinkles and bubbles.

C. Self-Adhering Membrane: Remove release paper layer, and roll out onto substrate with a mechanical roller to provide full contact bond.

D. Overlap edges and ends, minimum 3 inches, seal permanently waterproof by method recommended by manufacturer, and apply uniform bead of sealant to joint edge.

E. Reinforce membrane with multiple thickness of membrane material over joints, whether joints are static or dynamic.

F. Weather lap joints on sloped substrate in direction of drainage, and seal joints and seams.

G. Flexible Flashings: Seal items watertight that penetrate through waterproofing membrane with flexible flashings.

H. Seal membrane and flashings to adjoining surfaces.

3.04 INSTALLATION - PROTECTION BOARD

A. Place protection board directly against membrane; butt joints, and scribe and cut boards around projections, penetrations, and interruptions.

3.05 PROTECTION

A. Do not permit traffic over unprotected or uncovered membrane.

END OF SECTION

SECTION 31 2200
GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Removal and storage of topsoil.

B. Rough grading the site for site improvements.

C. Finish grading .

1.02 RELATED REQUIREMENTS

A. Section 31 2316.13 - Trenching: Trenching and backfilling for utilities.

B. Section 31 2323 - Fill: Filling and compaction.

1.03 REFERENCES

A. ASTM D 1556-90 -- Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; 1990.

B. ASTM D 1557-91 -- Test Methods for Laboratory Compaction Characteristics of Soils Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN m/m3)); 1991.

C. ASTM D 2167-94 -- Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 1994.

D. ASTM D 2487-93 -- Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System); 1993.

E. ASTM D 2922-91 -- Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth); 1991.

1.04 QUALITY ASSURANCE

A. Perform Work in accordance with State of California, Public Works Department standards.
   1. Testing Laboratory Services:
      a. The owner will secure and pay for the services of a geotechnical engineer to reasonably classify existing soil materials, to explore through a subsoil study and recommend the required over-excavations and depth of final bottom of over-excavations, to recommend and to classify proposed borrow materials when necessary, to verify compliance of materials with specified requirements, and to perform required field and laboratory testing and to provide grading and foundation recommendations.

1.05 PROJECT CONDITIONS

A. Protect above- and below-grade utilities that remain.

B. Protect plants, lawns, and other features to remain as a portion of final landscaping.

C. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from grading equipment and vehicular traffic.

1.06 SITE CONDITIONS

A. The owner makes no representation as to the existing soil or sub-surface conditions or it's suitability for the proposed/intended use. The Contractor shall take all necessary measures required to verify and substantiate the existing site conditions, and incorporate in his bid the required materials, methods and labor required to provide an acceptable finished product based on the provisions and requirements of this section.

B. Site Utilities:
   1. Advise utility companies of excavation activities before starting excavations. Locate and identify underground utilities passing through work area before starting work.
   2. If underground utilities are encountered in locations other than indicated, immediately advise utility owners before proceeding. Amend project record documents to show actual locations.

3. Protect existing utilities indicated to remain.
4. Do not interrupt existing utilities without advance notice to and written approval from the owner.
5. Repair or replace any existing utilities that are damaged due to the work of this contract at no cost to the owner.

PART 2 PRODUCTS

2.01 MATERIALS

A. Where sufficient approved materials are not available from required excavations on site, obtain and pay for materials from approved sources off site without charge to the owner.

B. IMPORT MATERIAL WILL BE REQUIRED FOR THIS PROJECT. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE GEOTECHNICAL RECOMMENDATIONS REPORT AND ALSO WITH THE ENVIRONMENTAL REQUIREMENTS OF DTSC.

C. For each soil material proposed for use as fill or backfill, whether obtained on or off site, testing laboratory shall classify soil material, develop Proctor curve, and perform any other tests required.

D. Obtain approval of the architect / geotechnical engineer for each soil material.

E. Satisfactory Topsoil: Fertile agricultural soil, typical for locality, capable of sustaining vigorous plant growth; free of subsoil, rocks larger than 2 inches in diameter, clay, toxic matter, plants, weeds, and roots.

F. Backfill and Fill Materials: Materials classified as satisfactory.

G. Satisfactory Fill Material (ASTM D 2487): Clean deposits free of roots, stumps, vegetation, deleterious matter, trash, debris, and unsuitable materials as approved in the field by the project geotechnical consultant and classified as follows:
   1. GW (well-graded gravel).
   2. GP (poorly graded gravel).
   3. GM (silty gravel).
   4. SW (well-graded sand).
   5. SM (silty sand).

H. Unsatisfactory Fill Material (ASTM D 2487):
   1. GC (clayey gravel).
   2. SP (poorly graded sand).
   3. SC (clayey sand).
   4. CL (clean clay).
   5. ML (silt).
   6. OL (organic clay).
   7. OL (organic silt).
   8. CH (fat clay).
   9. MH (elastic silt).
   10. OH (organic clay).
   11. OH (organic silt).
   12. PT (peat).

I. Subbase Materials: Well-graded, clean, sound, durable particles of crushed stone or crushed gravel, and screenings. Obtain the architect's / soil engineer's approval of source, quality, and gradation.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench mark and intended elevations for the Work are as indicated.

B. Verify the absence of standing or ponding water.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. Protection: Provide markers indicating limits of work and clear identification of items and areas requiring protection.

D. Provide barricades, temporary fences, warning signs, and warning lights around open excavations as necessary to prevent injury to persons.

E. The contractor is solely responsible for determining the potential for injury to persons and damage to property. Any indication of temporary fencing delineated on the drawings is a minimum requirement, and does not relieve the contractor of the responsibility of providing adequate protection of the work.
   1. Where such potential is present, take appropriate protective measures.
   2. Protect persons from injury and protect existing and new improvements from damage caused directly or indirectly by construction operations.

F. Do not allow excavation subgrades and soil at foundations to be subjected to effects of rain or other sources of excessive moisture. Provide protective covering materials and divert site drainage and run off as necessary. Should prepared, compacted subgrades be damaged by rain or excessive moisture, remove soil materials to the depth required by the Soils Engineer and replace with acceptable materials and recompact in conformance with specified requirements.

G. Locate, identify, and protect from damage above- and below-grade utilities to remain.

H. Provide temporary means and methods to remove all standing or ponding water from areas prior to grading.

I. Protect site features to remain, including but not limited to bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs, from damage by grading equipment and vehicular traffic.

J. Protect plants, lawns, and other features to remain as a portion of final landscaping.

3.03 EROSION CONTROL

A. To the maximum extent practicable, prevent erosion or displacement of soils and discharge of soil-bearing water runoff to adjacent properties and waterways.

B. Provide erosion control during the entire project in accordance with applicable regulations.

3.04 COMPLIANCE WITH STATE STORM WATER PERMIT FOR CONSTRUCTION

A. Contractor shall be required to comply with all conditions of the State Water Resources Control Board (State Water Board) National Pollutant Discharge Elimination System General Permit for Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity (the "Permit") for all construction activity which results in the disturbance of in excess of five acres of total land area or which is part of a larger common area development or sale. It shall be the Contractor's responsibility to evaluate cost of compliance with the Storm Water Pollution Prevention Program (SWPPP) in bidding on this contract. Contractor shall comply with all requirements of the State Water Resources Control Board. Contractor shall include all costs of compliance with specified requirements in the contract amount.

B. Contractor shall be responsible for implementing and complying with the provisions of the Permit and the SWPPP, including the standard provisions, monitoring and reporting requirements as required by Permit. Contractor shall provide copies of all reports and monitoring information to the Owner.

C. Contractor shall comply with the lawful requirements of any applicable municipality, the County, drainage district, and other local agencies regarding discharges of storm water to separate storm drain system or other watercourses under their jurisdiction, including applicable requirements in municipal storm water management programs.

D. Failure to comply with the Permit is in violation of federal and state law. Contractor hereby agrees to idemnify and hold harmless the Owner, its officers, agents, and employees from and against any and all claims, demands, losses or liabilities of any kind or nature which Owner, its

officers, agents, and employees may sustain or incur for noncompliance with Permit arising out of or in connection with the project, except for liability resulting from the negligence or wilful misconduct of Owner, its officers, agents or employees. Owner may seek damages from Contractor for delay in completing the contract in accordance with Article 6 of the General Conditions, caused by the Contractor's failure to comply with Permit.

3.05 PROTECTION OF TREES

A. Provide temporary guards to protect trees and vegetation to remain. Place guards so as to prevent all forms of vehicular traffic or parking within drip lines.
   1. Do not allow excess foot traffic within drip lines.
   2. Do not stockpile construction materials, soil, or aggregates within drip lines.
   3. Water trees and other vegetation to remain within limits of the area of construction activities as required to maintain their health during course of construction operations.

B. Engage a qualified arborist to remove branches or roots to the extent required by this specification or shown on the drawings.

C. Excavate within drip line of trees only where indicated.

D. Where underground utilities must pass within drip line, hand-dig tunnels to avoid cutting main lateral roots and taproots. Minor roots may be cut only when necessary.
   1. Where root system is damaged or cut back, prune branches to maintain root/branch balance.

E. Immediately protect exposed roots until re-establishment in backfill. Cover with approved mulching material and keep continuously moist.

F. Where cutting is required, cut branches and roots using properly sharpened tools and without breaking members.

G. Promptly repair any damaged trees to prevent death or loss of vigor.
   1. Where the contractor's operations result in dead or severely damaged trees, remove trees and provide new trees of similar size, except provide 6 inch-caliper trees to replace existing trees over 6 inches caliper.
      a. Species as selected by the architect.

3.06 DEWATERING

A. Do not allow surface or ground water to flow into or accumulate in excavations.

B. Do not allow water to flow in an uncontrolled fashion across the project site or to erode slopes or to undermine foundations. Do not allow water to be diverted onto adjacent properties. Arrange excavation operations so as to provide continual and effective drainage of excavations.

C. Provide and maintain temporary diversion ditches, dikes, and grading as necessary; do not use trench excavations for this purpose. When required by surface or subsurface water conditions, provide sumps, wellpoints, French drains, pumps, and other control measures necessary to keep excavations free of water. When existence of ground water near or above final excavation level is indicated or suspected, provide control measures prior to excavating to lower water level and maintain water level continuously below working level.

3.07 PAVEMENT SUBBASE / SUBGRADE PLACEMENT

A. Overexcavations for proposed surface improvement areas, such as pavement or flatwork should be conducted to a minimum depth of two feet below existing or proposed subgrade or to the depth of suitable material, whichever is deeper.

B. The geotechnical representative shall observe the exposed ground surface prior to placement of compacted fill or improvements, to verify competency of exposed subgrade materials. After approval, the exposed subgrades to receive fill should be scarified a minimum of eight inches, moisture conditioned, and properly compacted prior to fill placement.

3.08 COMPACTION

A. Place materials used in backfilling and filling in layers not exceeding loose depths as follows:

1. Heavy equipment compaction: 8 inches.
2. Hand-operated tampers: 4 inches.

B. Place material simultaneously on opposite sides of walls, small structures, utility lines, etc. to avoid displacement or overstressing.

C. In-Place Density Requirements: Compact soil to not less than the values given below, expressed as a percentage of maximum density at above optimum moisture content, as evaluated by ASTM D 1557.
1. Unpaved areas: Top 12 inches of bottom of over-excavation and subsequent lifts:
   a. 90 percent.
2. Paved areas: Top 12 inches of bottom of over-excavations and subsequent lifts, except the upper one foot from rough finish grade:
   a. 95 percent.
   b. 95 percent within upper one foot below base coarse.
3. Utility trenches: Compact backfill and fill materials to in-place density specified for applicable area of trench, but in no case less than 95 percent.

D. Moisture Control: During compaction, control moisture of bottom of over-excavations and subsequent lifts to within tolerances from optimum moisture content as recommended by testing laboratory. Wet surface with water when additional moisture is required. Aerate soil to aid in drying or replace soil when excessive moisture is present.

E. Properly moisture conditioned, low expansion potential soils derived from the on-site materials are considered suitable for reuse on the site as compacted fill. If used, these materials should be screened of organics and materials generally greater than three inches in maximum dimension.

F. Imported fill beneath structures and flatwork should have an Expansion Index of 20 or less (ASTM D 4829).

3.09 ROUGH GRADING

A. General: Smooth grade to a uniform surface that complies with compaction requirements and required lines, grades, and cross sections and is free from irregular surface changes.

B. Provide smooth transition between existing adjacent grades and changed grades. Cut out soft spots, fill low spots, and cut down high spots to conform to required surfaces tolerances.

C. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.

D. Do not remove topsoil when wet.

E. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.

F. Do not remove wet subsoil , unless it is subsequently processed to obtain optimum moisture content.

G. When excavating through roots, perform work by hand and cut roots with sharp axe.

H. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

I. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack surface water control.

J. Slope grades to direct water away from structures and to prevent ponding. Finish subgrade to required elevations within the following tolerance:
1. Unpaved areas: Plus or minus 0.10 foot.
2. Paved areas: Plus or minus 0.05 foot.
3. Exterior steps and ramps: Plus or minus 0.05 foot.
4. Inside building lines: 1/2 inch in 10 horizontal feet.

3.10 FINISH GRADING

A. Before Finish Grading:
1. Trench backfilling has been inspected.
2. Verify subgrade has been contoured and compacted.

B. Remove debris, roots, branches, stones, in excess of 1/2 inch in size. Remove soil contaminated with petroleum products.

C. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches.

D. Place topsoil where required to level finish grade.

E. Place topsoil during dry weather.

F. Remove roots, weeds, rocks, and foreign material while spreading.

G. Near plants spread topsoil manually to prevent damage.

H. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

I. Lightly compact placed topsoil.

J. Maintain stability of topsoil during inclement weather. Replace topsoil in areas where surface water has eroded thickness below specifications.

3.11 TOLERANCES

A. Top Surface of Subgrade: Plus or minus 0.10 foot (1-3/16 inches) from required elevation.

B. Top Surface of Finish Grade: Plus or minus 0.04 foot (1/2 inch).

3.12 REPAIR AND RESTORATION

A. Existing Facilities, Utilities, and Site Features to Remain: If damaged due to this work, repair or replace to original condition.

B. Trees to Remain: If damaged due to this work, trim broken branches and repair bark wounds; if root damage has occurred, obtain instructions from Architect as to remedy.

C. Other Existing Vegetation to Remain: If damaged due to this work, replace with vegetation of equivalent species and size.

3.13 MAINTENANCE

A. Completed Areas: Protect from damage by pedestrian or vehicular traffic, freezing, erosion, and contamination with foreign materials.
   1. Repair and re-establish grades to specified tolerances in settled, eroded, or rutted areas.

B. Damaged Areas: Where completed or partially completed surfaces become eroded, rutted, settled, or lose compaction and whether due to subsequent construction operations or weather conditions, restore materials to required conditions: Scarify or remove and replace to the required depth, return to optimum moisture content, and compact materials to the required density before continuing construction.

C. Correction: Should settling occur within the project correction period, remove finished surfacing, add additional approved material, compact material, and reconstruct surfacing. Construct surfacing to match and blend in with adjacent surfacing as nearly as practicable.

3.14 CLEANING

A. Clean all paved surfaces of excess dirt, debris, etc.

B. Spread any excess satisfactory soil in location on site as directed by the architect and District.

C. Remove any unsatisfactory soil, trash, debris, and other materials not required for use on the project and legally dispose of it off the owner's property.

D. On-site burning is not permitted.

E. Leave site clean and raked to the satisfaction of the District's representative, and if applicable, ready to receive landscaping.

END OF SECTION

SECTION 31 2316.13
TRENCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Backfilling and compacting for utilities outside the building and for site improvements.

1.02 REFERENCES

A. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18 in.) Drop 2021, with Errata (2022).

B. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)) 2012 (Reapproved 2021).

C. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method 2015, with Editorial Revision (2016).

D. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)) 2012 (Reapproved 2021).

E. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method 2015.

F. ASTM D 3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth); 2005.

1.03 DEFINITIONS

A. Finish Grade Elevations: Indicated on drawings.

B. Subgrade Elevations: 30 inches below finish grade elevations indicated on drawings to the top of the utility, unless otherwise indicated.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used.

C. Compaction Density Test Reports.

1.05 DELIVERY, STORAGE, AND HANDLING

A. When necessary, store materials on site in advance of need.

B. Verify that survey bench marks and intended elevations for the Work are as indicated.

C. Protect plants, lawns, rock outcroppings, and other features to remain.

D. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. General Fill: Conforming to State of California Public Works Department standard.

B. Granular Fill: Coarse aggregate, conforming to State of California Public Works Department standard.

C. Sand: Conforming to State of California Public Works Department standard.

2.02 PLASTIC WARNING TAPE

A. Acid and alkali-resistant polyethylene film specifically manufactured for marking and identifying underground utilities.
   1. Minimum width, 6 inches; minimum thickness, 4 mils.
   2. Metallic core encased in protective jacket resistant to corrosion and detectable by metal detector when tape is buried 3-feet deep.

B. Continuous printed inscription shall describe utility. Tape color:
   1. Electric: Red.
   2. Gas: Yellow.
   3. Telephone: Orange.
   4. CATV: Orange.
   5. Water System: Blue.
   6. Sewer: Green.

2.03 SOURCE QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for testing and analysis of soil material.

B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest.

PART 3 EXECUTION

3.01 EXAMINATION

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. See Section 31 2200 for additional requirements.

C. Locate, identify, and protect utilities that remain and protect from damage.

3.03 TRENCHING

A. Notify Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

B. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.

C. Do not interfere with 45 degree bearing splay of foundations.

D. Cut trenches wide enough to allow inspection of installed utilities.

E. Hand trim excavations. Remove loose matter.

F. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.

G. Remove excavated material that is unsuitable for re-use from site.

H. Remove excess excavated material from site.

3.04 PREPARATION FOR UTILITY PLACEMENT

A. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.

B. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

C. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.

3.05 BACKFILLING

A. Backfill and compact in 8" maximum lifts to contours and elevations indicated using specified materials.

B. Fill up to subgrade elevations unless otherwise indicated.

C. Employ a placement method that does not disturb or damage other work.

D. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

E. Maintain optimum moisture content of fill materials to attain required compaction density.

F. Correct areas that are over-excavated.
   1. Thrust bearing surfaces: Fill with concrete.

2. Other areas: Use general fill, flush to required elevation, compacted to minimum 95 percent of maximum dry density.

G. Compaction Density Unless Otherwise Specified or Indicated:
1. Under paving and similar construction: 95 percent of maximum dry density.

3.06 BEDDING AND FILL AT SPECIFIC LOCATIONS

A. Utility Piping and Conduits :
1. Bedding: Use Fill Type sand gravel crushed aggregate or native free draining granual material having sand equivelant of not less than 50 and expansion coefficient of not more than .5 of 1%.
2. Cover with general fill.
3. Compact in maximum 8 inch lifts to 95 percent of maximum dry density.

3.07 TOLERANCES

A. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

B. Top Surface of Backfilling Under Paved Areas: Plus or minus 1 inch from required elevations.

3.08 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection and testing.

B. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with AASHTO T 180, ASTM D 1557 ("modified Proctor"), ASTM D 698 ("standard Proctor"), AASHTO T 180, ASTM D 1557 ("modified Proctor"), ASTM D 698 ("standard Proctor"), AASHTO T 180, ASTM D 1557 ("modified Proctor"), or ASTM D 698 ("standard Proctor").

C. If tests indicate work does not meet specified requirements, remove work, replace and retest.

3.09 CLEANING

A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

END OF SECTION

SECTION 31 2316
EXCAVATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Excavating for footings and paving.

1.02 RELATED REQUIREMENTS

A. Section 01 7000 - Execution and Closeout Requirements: General requirements for dewatering of excavations and water control.

B. Section 31 2200 - Grading: Grading.

1.03 PROJECT CONDITIONS

A. Verify that survey bench mark and intended elevations for the Work are as indicated.

B. Protect plants, lawns, rock outcroppings, and other features to remain.

C. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

PART 3 EXECUTION

2.01 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. See Section 31 2200 for additional requirements.

C. Grade top perimeter of excavation to prevent surface water from draining into excavation. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by Architect.

2.02 EXCAVATING

A. Excavate to accommodate new structures and construction operations.

B. Notify Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

C. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.

D. Do not interfere with 45 degree bearing splay of foundations.

E. Cut utility trenches wide enough to allow inspection of installed utilities.

F. Hand trim excavations. Remove loose matter.

G. Correct areas that are over-excavated and load-bearing surfaces that are disturbed; see Section 31 2323.

H. Grade top perimeter of excavation to prevent surface water from draining into excavation.

I. Remove excavated material that is unsuitable for re-use from site.

J. Remove excess excavated material from site.

2.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection and testing.

B. Provide for visual inspection of load-bearing excavated surfaces before placement of foundations.

2.04 PROTECTION

A. Divert surface flow from rains or water discharges from the excavation.

B. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.

C. Protect open excavations from rainfall, runoff, freezing groundwater, or excessive drying so as to maintain foundation subgrade in satisfactory, undisturbed condition.

D. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

E. Keep excavations free of standing water and completely free of water during concrete placement.

END OF SECTION

SECTION 31 2323
FILL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Filling, backfilling, and compacting for footings and paving.

B. Filling holes, pits, and excavations generated as a result of removal (demolition) operations.

1.02 RELATED REQUIREMENTS

A. Section 31 2200 - Grading: Removal and handling of soil to be re-used.

B. Section 31 2200 - Grading: Site grading.

C. Section 31 2316 - Excavation: Removal and handling of soil to be re-used.

D. Section 31 2316.13 - Trenching: Excavating for utility trenches for site improvements.

1.03 REFERENCE STANDARDS

A. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18 in.) Drop 2021, with Errata (2022).

B. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)) 2012 (Reapproved 2021).

C. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method 2015, with Editorial Revision (2016).

D. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)) 2012 (Reapproved 2021).

E. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method 2015.

F. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System) 2017, with Editorial Revision (2020).

G. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth); 2005.

1.04 DEFINITIONS

A. Finish Grade Elevations: Indicated on drawings.

B. Subgrade Elevations: As indicated on drawings and/or as determined by paving or slab sections.

1.05 SUBMITTALS

A. See Section 01305 - Submittals, for submittal procedures.

B. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used.

C. Compaction Density Test Reports.

1.06 DELIVERY, STORAGE, AND HANDLING

A. When necessary, store materials on site in advance of need.

B. When fill materials need to be stored on site, locate stockpiles where indicated.
   1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
   2. Prevent contamination.
   3. Protect stockpiles from erosion and deterioration of materials.

C. Verify that survey bench marks and intended elevations for the Work are as indicated.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. General Fill: Imported borrow.

1. Graded.
2. Clean deposits free of roots, stumps, vegetation, deleterious matter, trash, debris, and unsuitable materials as approved in the field by the project geotechnical consultant.

B. Concrete for Fill: Lean concrete.

C. Granular Fill: Coarse aggregate, conforming to State of California Public Works Department standard.

D. Topsoil: Topsoil excavated on-site, or imported.
1. Graded.
2. Free of roots, rocks larger than 1 inch, subsoil, debris, large weeds and foreign matter.

E. Bedding Material: Bedding material shall be sand, gravel, crushed aggregate or approved native material. Bedding material shall have a sand equivalent of not less than 30 or have a coefficient of permeability greater than 0.001 centimeters per second. Bedding material shall be sized within the following range:
1. 3/4" Sieve: 100 percent passing.
2. No. 4 Sieve: 35 to 65 percent passing.
3. No. 200 Sieve: 0 to 10 percent passing.

2.02 SOURCE QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for testing and analysis of soil material.

B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest.

PART 3 EXECUTION

3.01 EXAMINATION

A. Identify required lines, levels, contours, and datum locations.

B. See Section 31 2200 for additional requirements.

C. Verify subdrainage, dampproofing, or waterproofing installation has been inspected.

D. Verify areas to be filled are not compromised with surface or ground water.

3.02 PREPARATION

A. Scarify and proof roll subgrade surface to a depth of 6 inches to identify soft spots.

B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.

C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

D. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.03 FILLING

A. Fill to contours and elevations indicated using specified materials.

B. Fill up to subgrade elevations unless otherwise indicated.

C. Employ a placement method that does not disturb or damage other work.

D. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

E. Maintain optimum moisture content of fill materials to attain required compaction density.

F. Granular Fill: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.

G. Slope grade away from building minimum 2 inches in 10 ft , unless noted otherwise. Make gradual grade changes. Blend slope into level areas.

H. Correct areas that are over-excavated.
1. Load-bearing foundation surfaces: Fill with concrete.

2. Other areas: Use general fill, flush to required elevation, compacted to minimum 95 percent of maximum dry density.

I. Compaction Density Unless Otherwise Specified or Indicated:
1. Under paving, slabs-on-grade, and similar construction: 95 percent of maximum dry density.
2. At other locations: 95 percent of maximum dry density.

J. Reshape and re-compact fills subjected to vehicular traffic.

K. Maintain temporary means and methods, as required, to remove all water while fill is being placed as required, or until directed by the Architect. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.

3.04 FILL AT SPECIFIC LOCATIONS

A. At Foundation Walls and Footings:
1. Use general fill.
2. Fill up to subgrade elevation.
3. Compact each lift to 95 percent of maximum dry density.
4. Do not backfill against unsupported foundation walls.

B. Over Buried Utility Piping and Conduits in Trenches :
1. Bedding: Use sand or granular fill.
2. Cover with general fill.
3. Compact in maximum 8 inch lifts to 95 percent of maximum dry density.

3.05 TOLERANCES

A. Top Surface of General Filling: Plus or minus 1 inch from required elevations.

B. Top Surface of Filling Under Paved Areas: Plus or minus 1 inch from required elevations.

3.06 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection and testing.

B. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with AASHTO T 180, ASTM D 1557 ("modified Proctor"), ASTM D 698 ("standard Proctor"), AASHTO T 180, ASTM D 1557 ("modified Proctor"), ASTM D 698 ("standard Proctor"), AASHTO T 180, ASTM D 1557 ("modified Proctor"), or ASTM D 698 ("standard Proctor").

C. If tests indicate work does not meet specified requirements, remove work, replace and retest.

3.07 CLEANING

A. See Section 01 7419 - Construction Waste Management and Disposal, for additional requirements.

B. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

END OF SECTION

SECTION 32 1123
AGGREGATE BASE COURSES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aggregate base course.

1.02 RELATED REQUIREMENTS

A. Section 31 2200 - Grading: Preparation of site for base course.

B. Section 32 1216 - Asphalt Paving: Binder and finish asphalt courses.

1.03 REFERENCE STANDARDS

A. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil–Aggregate Subbase, Base, and Surface Courses 2017 (Reapproved 2021).

B. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)) 2012 (Reapproved 2021).

C. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method 2015, with Editorial Revision (2016).

D. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System) 2017, with Editorial Revision (2020).

1.04 DELIVERY, STORAGE, AND HANDLING

A. When necessary, store materials on site in advance of need.

B. When aggregate materials need to be stored on site, locate stockpiles where indicated.

C. Verify that survey bench marks and intended elevations for the Work are as indicated.

PART 2 PRODUCTS

2.01 MATERIALS

A. Coarse Aggregate Type Class 2: Coarse aggregate, conforming to State of California Public Works Department standard.

B. Fine Aggregate : Sand; conforming to State of California Public Works Department standard.

2.02 SOURCE QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for testing and analysis of aggregate materials.

B. Where aggregate materials are specified using ASTM D2487 classification, test and analyze samples for compliance before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest.

D. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify substrate has been inspected, gradients and elevations are correct, and is dry.

3.02 PREPARATION

A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.

B. Do not place aggregate on soft, muddy, or frozen surfaces.

3.03 INSTALLATION

A. Under Bituminous Concrete Paving:
   1. Place coarse aggregate to a total compacted thickness as noted on the drawings.
   2. Compact to 95 percent of maximum dry density.

B. Place aggregate in maximum 4 inch layers and roller compact to specified density.

C. Level and contour surfaces to elevations and gradients indicated.

D. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.

E. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.04 TOLERANCES

A. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.

B. Scheduled Compacted Thickness: Within 1/4 inch.

3.05 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection and testing.

B. Compaction density testing will be performed on compacted aggregate base course in accordance with ASTM D1556.

C. Results will be evaluated in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D 698 ("standard Proctor").

D. If tests indicate work does not meet specified requirements, remove work, replace and retest.

END OF SECTION

SECTION 32 1216
ASPHALT PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Asphalt Concrete Paving.

B. Pavement-marking paint.

C. Redwood Headers.

D. Surface sealer.

1.02 REFERENCE STANDARDS

A. AI MS-2 - Asphalt Mix Design Methods 2015.

B. AI MS-19 - Basic Asphalt Emulsion Manual 2008.

C. Standard Specifications for Public Works Construction ("Greenbook") - 1997 Edition.

D. Standard Specifications, State of California, Department of Transportation (Caltrans).

1.03 SUBMITTALS

A. Mix Design:
   1. Submit for approval each job-mix formula proposed for work of this section.

B. Approved Mix:
   1. Furnish licensed weighmaster certificates with each load of asphalt concrete delivered to project. Yield of asphalt concrete material shall be twenty four (24) pounds per square foot of paving area based on two inch thickness after rolling. A five (5) percent tolerance will be allowed between total calculated weight and actual weight incorporated in the work.

1.04 QUALITY ASSURANCE

A. Perform Work in accordance with State of California Public Work's standard.
   1. Provide aggregate base asphalt concrete and installation complying with Standard Specifications for Public Works Construction (PWC Specifications), current edition, and the Regional Supplement Amendments to the Standard Specifications for Public Works Construction, current edition, and as herein specified.

B. Mixing Plant: Conform to State of California Public Work's standard.

C. Obtain materials from same source throughout.

D. Installer's Qualifications: Firm specializing in paving installation, with not less than 5 years of experience in installation of paving similar to that required for this project.

E. Testing and Inspection:
   1. The owner will engage an independent testing and inspection agency to perform quality control procedures and to prepare test reports.

1.05 REGULATORY REQUIREMENTS

A. Conform to applicable code for paving work on public property.

1.06 FIELD CONDITIONS

A. Do not place asphalt when ambient air or base surface temperature is less than 40 degrees F, or surface is wet or frozen.

B. Place bitumen mixture when temperature is not more than 15 F degrees below bitumen supplier's bill of lading and not more than maximum specified temperature.

PART 2 PRODUCTS

2.01 MATERIALS

A. Aggregate for Base Course- Gravel : Angular crushed washed stone; free of shale, clay, friable material and debris.

B. Aggregate for Binder Course: In accordance with State of California Public Work's standards.

C. Aggregate for Wearing Course: In accordance with State of California Public Work's standards.

D. Fine Aggregate: In accordance with State of California Public Work's standards.

E. Mineral Filler: Finely ground particles of limestone, hydrated lime or other mineral dust, free of foreign matter.

F. Seal Coat:
   1. Light oil and sand finish.

G. Pavement-Marking Paint: Chlorinated rubber-alkyd paint (FS TT-P-115, Type III); factory-mixed, quick-drying, and non-bleeding.

H. Wood Headers, Stakes, Benders and Splices: "Foundation" grade redwood as graded by Redwood Inspection Service. Minimum 2" thick lumber for headers and stakes and minimum 1" thick boards for splices. Use galvanized nails for fastening.

2.02 ASPHALT PAVING MIXES AND MIX DESIGN

A. Base Course: 3.0 to 6 percent of asphalt cement by weight in mixture in accordance with AI MS-2.

B. Binder Course: State of California Public Work's standards.

C. Wearing Course: 5 to 7 percent of asphalt cement by weight in mixture in accordance with AI MS-2.

D. Submit proposed mix design of each class of mix for review prior to beginning of work.

E. Asphalt Concrete:
   1. Top course in playground areas: PWC Specifications, Section 203-6, Class E-PG 64-10. Rolled thickness shall be 1".
   2. Parking areas, driveways and first course of playground areas: PWC Specifications, Section 203-6, Class C1-PG 64-10. Rolled thickness in parking areas and driveway shall be as shown on the plans. Rolled thickness of first course in playground areas shall be specified thickness as shown on plans minus the 1" top course.

2.03 SOURCE QUALITY CONTROL

A. Test mix design and samples in accordance with AI MS-2.

PART 3 EXECUTION

3.01 GENERAL

A. Comply with cross sections, elevations, and grades indicated on the drawings.

B. Prepare and install pavement structures in accordance with practices recommended in the "Asphalt Paving Manual"; Publication MS-8; Asphalt Institute, except to the extent that such practices are superseded by specific requirements of this section.

3.02 EXAMINATION

A. Verify that compacted subgrade is dry and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

C. Notify architect in writing of any unsatisfactory conditions. Do not begin paving installation until these conditions have been satisfactorily corrected.

D. Commencement of paving work shall constitute acceptance of subbase conditions.

3.03 PREPARATION

A. General: Immediately before placing asphalt concrete mix, remove all loose or deleterious material from surface over which pavement will be placed. Ensure that subbase is properly prepared to receive paving.
   1. Aggregate subbase:
      a. Sweep loose granular particles from surface of aggregate course. Do not dislodge or disturb in any way the aggregate embedded in compacted surface of subbase course.

b. Proof roll prepared sub-base surface to check for unstable areas and areas requiring additional compaction. Repair these areas as required. Do not begin paving work until deficient sub-base areas have been corrected and are ready to receive paving.

3.04 INSTALLATION

A. Techniques:
1. Placing the mix:
   a. Spread mix at minimum temperature of 225 degrees F.
   b. Place asphalt concrete mix on prepared surface and strike off. Place inaccessible and small areas using hand tools.
      1) Check mat frequently during placement, to verify correct thickness.
   c. Before rolling operations begin, check surface using template and straightedge, and correct irregularities.
   d. Width of paving strips:
      1) Place mix in paving strips at least 10 feet wide.
      2) Roll first paving strip after placement. Place subsequent paving strips, extending rolling operation to overlap preceding strips.
   e. Coursing requirements:
      1) Lifts:
         (a) Base Course:
            (1) Place plant-mixed asphalt concrete base course in single lift.
            (2) Compact to 95 percent.
            (3) Moisture Content: Use only the amount of moisture needed to achieve the specified compaction.
2. Joints:
   a. General: Construct joints to form continuous bond between adjoining portions of work. Ensure that texture and density of pavement are continuous across the joint. Surface across joint shall form smooth, uninterrupted plane and shall not pond water.
   b. Joint locations include the following:
      1) Between pavements laid on successive days.
      2) At any point in paving where material already laid has become cold because of delay.
   c. Clean by brushing, or cut fresh vertical face using power saw if necessary, wherever contact surface of previously constructed pavement has become coated by dust, sand, or other objectionable material.
   d. Apply thin tack coat on vertical contact surface before beginning placement of new material.
3. Rolling:
   a. Start rolling operation as soon as hot mix will bear weight of roller and can be compacted without unacceptable displacement of material.
   b. Comply with roller manufacturer's recommended rolling speed, but in no case exceed 3 miles per hour.
   c. Avoid sharp turns and abrupt starts and stops.
   d. Compact mixture in areas inaccessible to rollers using hot hand tampers or vibrating plate compactors.
   e. Breakdown rolling:
      1) If grade is not absolutely level, begin breakdown rolling on low side of spread. Progress toward high side.
      2) Execute initial breakdown pass with drive wheel forward toward the direction of paving.
      3) Examine surface immediately after breakdown rolling. Repair as necessary by loosening material in defective areas and filling with hot material.
   f. Second (intermediate) rolling:
      1) Execute second rolling as soon as possible after breakdown rolling, while mixture is still hot enough to achieve maximum density.
      2) Continue repeating the pattern until mixture has been compacted thoroughly.

g. Finish rolling:
1) Execute finish rolling while mixture is sufficiently warm to allow removal of roller marks.
2) Continue rolling operation until maximum density is achieved and roller marks are entirely eradicated.

4. Patching:
a. Remove paved areas which are contaminated with foreign materials or which are defective in any way. Replace removed material with fresh, hot mix. Compact by rolling until maximum density and smoothness are achieved and there is no detectable variation between patch and adjacent paving.
b. Patch or re-pave area as required as a result of reconstruction or adjusting manholes, cleanouts, vaults, grates, etc. to proper grade.

5. Restriction of traffic:
a. Upon completion of rolling operations, do not permit vehicular traffic on pavement until it has cooled and hardened sufficiently.
b. Erect clearly-visible barricades and take other measures as required to protect pavement.

6. Wood Headers:
a. Install along all edges of asphalt concrete paving except where concrete paving, walks and curbs occur. Set top edge of header to conform to grade of asphalt paving. Benders of lesser thickness may be used to form returns.
b. Space stakes not exceed 4' on centers, unless otherwise noted. Drive stakes to a depth of 1" below the top of the header and nail to headers.
c. Splice joints between individual header boards with a 1" thick board same height as header and not less than 24" long.

3.05 BASE COURSE

A. Place and compact base course.

3.06 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for quality control.

B. General: Test in-place asphalt concrete courses for compliance with requirements for thickness, surface smoothness and density. Repair or remove and replace unacceptable paving as directed by Architect.

C. Thickness: In-place compacted thickness will not be acceptable if exceeding following allowable variation from required thickness.
1. Base Course: Specified thickness minus 1/2".
2. Surface Course: Specified thickness plus or minus 1/4".

D. Surface Smoothness: Test unfinished surface of each asphalt concrete course for smoothness, using 10' straight edge applied parallel with, and at right angles to centerline of paved area. Surface will not be acceptable if exceeding the following tolerances for smoothness.
1. Base Course Surface: 1/4".
2. Wearing Course Surface: 1/8".

E. Flood Test: Prior to application of seal coats, perform a flood test in the presence of the Owner's representative.
1. Method:
a. Flood the entire asphalt concrete paved areas with water by use of a tank truck or hoses.
b. If a depression occurs, where water ponds to a depth of more than 1/8", fill or otherwise correct to provide proper drainage.
c. Feather and smooth the edges of fill so that the joint between fill and original surface is invisible.

F. Densities:

1. Density of the asphalt concrete after rolling shall be 95 percent of the density obtained with the California Kneading Compactor per California Test 304.
    a. Density of the aggregate base course shall be 95 percent of maximum relative density.

3.07 PROTECTION

A. Immediately after placement, protect pavement from mechanical injury for 7 days or until surface temperature is less than 140 degrees F.

END OF SECTION

SECTION 32 1313
CONCRETE PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete sidewalks, integral curbs, gutters, and paving under truncated domes.

1.02 REFERENCE STANDARDS

A. 2019 California Building Code, Chapter 19A.

B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete 1991 (Reapproved 2009).

C. ACI 301 - Specifications for Concrete Construction 2020.

D. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete 2000 (Reapproved 2009).

E. ACI 305R - Guide to Hot Weather Concreting 2020.

F. ACI 306R - Guide to Cold Weather Concreting 2016.

G. ASTM A185/A185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete; 2007.

H. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2022.

I. ASTM C33/C33M - Standard Specification for Concrete Aggregates 2018.

J. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens 2021.

K. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete 2022.

L. ASTM C150/C150M - Standard Specification for Portland Cement 2022.

M. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete 2019.

N. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete 2019.

O. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types) 2018.

P. ASTM D1752 - Standard Specification for Preformed Sponge Rubber, Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction 2018.

1.03 SUBMITTALS

A. See Section 01305 - Submittals, for submittal procedures.

B. Design Data: Indicate pavement thickness, designed concrete strength, reinforcement, and typical details.

1.04 QUALITY ASSURANCE

A. Perform work in accordance with ACI 301.

B. Obtain cementitious materials from same source throughout.

C. Follow recommendations of ACI 305R when concreting during hot weather.

D. Follow recommendations of ACI 306R when concreting during cold weather.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

PART 2 PRODUCTS

2.01 PAVING ASSEMBLIES

A. Concrete Walks and Paving: 3,000 psi 28 day concrete, 4 inches thick, unless noted otherwise on the drawings.

2.02 FORM MATERIALS

A. Wood form material, profiled to suit conditions.

B. Joint Filler: Preformed; non-extruding bituminous type (ASTM D 1751), sponge rubber or cork (ASTM D 1752), non-extruding bituminous type (ASTM D 1751), or sponge rubber or cork (ASTM D 1752).
   1. Thickness: 1/2 inch.

2.03 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M Grade 40 (280); deformed billet steel bars; unfinished finish.

B. Steel Welded Wire Reinforcement: Plain type ASTM A 185/A 185M; in flat sheets; unfinished.

C. Dowels: ASTM A615/A615M Grade 40 (280); deformed billet steel bars; unfinished finish.

2.04 CONCRETE MATERIALS

A. Obtain cementitious materials from same source throughout.

B. Cement: ASTM C150 Sulfate Resistant - Type V portland type, grey color.

C. Fine and Coarse Mix Aggregates: ASTM C33.

D. Fly Ash: ASTM C618, Class C or F.

E. Water: Clean, and not detrimental to concrete.

2.05 ACCESSORIES

A. Curing Compound: ASTM C 309, Type 1, Class A.

B. Joint Sealer: Type as specified in Section 07900.

2.06 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Proportioning Normal Weight Concrete: Comply with the 2019 Calififfornia Building Code, Chapter 19A.

C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

D. Concrete Properties:
   1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,000 psi.
   2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
   3. Minimum cement content per cubic yard: 6.5 sacks.
   4. Maximum water-cement ratio per 94-pound sack of cement (gallons): 6.75.
   5. Total Air Content: 4 percent, determined in accordance with ASTM C173/C173M.
   6. Maximum Slump: 3 inches.
   7. Maximum Aggregate Size: 1 inch.

2.07 MIXING

A. Transit Mixers: Comply with ASTM C94/C94M.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

3.02 SUBBASE

A. Prepare subbase in accordance with State of California Public Works standards.

3.03 PREPARATION

A. Moisten base to minimize absorption of water from fresh concrete.

3.04 FORMING

A. Place and secure forms to correct location, dimension, profile, and gradient.

B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.05 REINFORCEMENT

A. Place reinforcement at midheight of slabs-on-grade.

B. Interrupt reinforcement at contraction joints.

C. Place dowels to achieve pavement and curb alignment as detailed.

3.06 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Place 3-1/2" thick concrete paving as a base for new truncated domes to be installed in asphalt areas. Concrete paving to match perimeter dimensions of truncated dome areas.

C. Ensure reinforcement, inserts, embedded parts, formed joints are not disturbed during concrete placement.

D. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

E. Apply surface retarder to all exposed surfaces in accordance with manufacturer's instructions.

3.07 JOINTS

A. Align curb, gutter, and sidewalk joints.

B. Place 1/2 inch wide expansion joints at 20 foot intervals and to separate paving from vertical surfaces and other components and in pattern indicated.
   1. Form joints with joint filler extending from bottom of pavement to within 1/2 inch of finished surface.
   2. Secure to resist movement by wet concrete.

C. Provide scored joints:
   1. At 5 feet intervals, or as indicated on the drawings.
   2. Between sidewalks and curbs.
   3. Between curbs and pavement.

3.08 FINISHING

A. Sidewalk Paving: (Surfaces less than 6% slope): medium broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch radius.

B. Curbs: Light broom, texture parallel to pavement direction.

C. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

D. Portland cement concrete paving shall be stable, firm, and slip resistant and shall comply with CBC Sections 11B-302 and 11B-403.

3.09 JOINT SEALING

A. See Section 07 9005 for joint sealer requirements.

3.10 TOLERANCES

A. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.

B. Maximum Variation From True Position: 1/4 inch.

3.11 CONCRETE CURING

A. Comply with requirements of ACI 308. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Moist cure and maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
   1. Normal concrete: Not less than 5 days.

C. Surfaces Not in Contact with Forms:
   1. Start initial curing as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
   2. Begin final curing after initial curing but before surface is dry.
      a. Curing compound: Apply in two coats at right angles, using application rate recommended by manufacturer.

3.12 PROTECTION

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.

B. Do not permit pedestrian traffic over pavement for 7 days minimum after finishing.

END OF SECTION

SECTION 32 3113
CHAIN LINK FENCES AND GATES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fence framework, fabric, and accessories.

B. Excavation for post bases; concrete foundation for posts.

1.02 REFERENCE STANDARDS

A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2015.

B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2009.

C. ASTM A392 - Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric 2011a.

D. ASTM A491 - Standard Specification for Aluminum-Coated Steel Chain-Link Fence Fabric 2011.

E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2015.

F. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength 2014.

G. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete 2015.

H. ASTM F567 - Standard Practice for Installation of Chain-Link Fence 2011.

I. ASTM F1043 - Standard Specification for Strength and Protective Coatings on Steel Industrial Fence Framework 2014.

J. ASTM F1083 - Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures 2013.

K. CLFMI CLF 2445 - Product Manual - Drawings 2012.

L. Standard Specifications for Public Works Construction (Greenbook), Current Edition, Section 206-6.

1.03 SUBMITTALS

A. See Section 01305 - Submittals, for submittal procedures.

B. Product Data: Provide data on fabric, posts, accessories, fittings and hardware.

C. Shop Drawings: Indicate plan layout, swing gate layout and fabrication details, rolling gate layout and fabrication details, spacing of components, post foundation dimensions, hardware anchorage, and schedule of components.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

B. Comply with all requirements from Chapter 10 of the C.B.C.

PART 2 PRODUCTS

2.01 MATERIALS

A. Posts, Rails, and Frames: ASTM F 1083 Schedule 40 hot-dipped galvanized steel pipe, welded construction, minimum yield strength of 25 ksi.

B. Wire Fabric: ASTM A 392 zinc coated steel chain link fabric.

C. Concrete: Ready-mixedcomplying with ASTM C 94/C 94M; normal Portland cement; 2,500 psi strength at 28 days, 3 inch slump; 3/4 inch nominal size aggregate.

2.02 COMPONENTS

A. Line Posts:
   1. 1.90" O.D. (1-1/2 NPS) for fences less than 72 inches in height.
   2. 2.375" O.D. (2 NPS) for fences 72 inches and higher.

B. Corner and Terminal Posts:
   1. 2.375" O.D. (2 NPS) for fences less than 72 inches in height.
   2. 2.875" O.D. (2-1/2 NPS) for fences 72 inches and higher.

C. Gate Posts:
   1. Up to 6'-0" Leaf Width: 2.875" O.D. (2-1/2 NPS) ; 5.79 lbs./ft.
   2. Over 6'-0" to 13'-0" Leaf Width: 4.0" O.D. (3-1/2 NPS); 9.11 lbs./ft.
   3. Over 13'-0" to 18'-0" Leaf Width: 6.625" O.D. ((6 NPS); 18.97 lbs./ft.

D. Top and Brace Rail: 1.66 inch diameter, plain end, sleeve coupled.

E. Fabric: 2 inch diamond mesh interwoven wire, 9 gage thick, top and bottom selvage knuckle / knuckle.

F. Tension Wire: 6 gage thick steel, single strand.

G. Tie Wire: Aluminum alloy steel wire.

2.03 ACCESSORIES

A. Caps: Cast steel galvanized; sized to post diameter, set screw retainer.

B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel.

2.04 FINISHES

A. Components (Other than Fabric): Galvanized in accordance with ASTM A123/A123M, at 1.7 oz/sq ft.

B. Hardware: Hot-dip galvanized to weight required by ASTM A153/A153M.

C. Accessories: Same finish as framing.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that line of fence has been properly identified.

B. Verify that proper grade has been established.

C. Verify location of underground utilities and structures.

D. Begin fence construction only after adequate clearance on both sides of fence is available.

3.02 INSTALLATION

A. Install framework, fabric, accessories and gates in accordance with ASTM F 567.

B. Place fabric on outside of posts and rails.

C. Set intermediate posts plumb , in concrete footings with top of footing 2 inches above finish grade. Slope top of concrete for water runoff.

D. Line Post Footing Depth Below Finish Grade: ASTM F 567.

E. Corner, Gate and Terminal Post Footing Depth Below Finish Grade: ASTM F 567.

F. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail one bay from end and gate posts.

G. Provide top rail through line post tops and splice with 6 inch long rail sleeves.

H. Install center brace rail on corner gate leaves.

I. Do not stretch fabric until concrete foundation has cured 28 days.

J. Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.

K. Position bottom of fabric 2 inches above finished grade.

L. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches on centers.

M. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.

3.03 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch.

B. Maximum Offset From True Position: 1 inch.

C. Components shall not infringe adjacent property lines.

END OF SECTION