

**THE
TAYLOR
GROUP**
ARCHITECTS

TECHNICAL SPECIFICATIONS

FOR

**PROPOSED AG SHOP CANOPY FOR
KINGSBURG HIGH SCHOOL**

KINGSBURG, CALIFORNIA

DSA Project No. 02-118435

IDENTIFICATION STAMP
 DIV. OF THE STATE ARCHITECT

APP: 02-118435 INC:

REVIEWED FOR

SS FLS ACS

DATE: 10/06/2020

SEALS PAGE



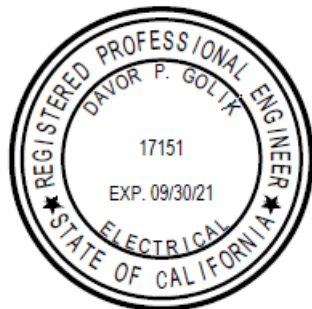
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TABLE OF CONTENTS **PAGES**

COVER PAGE	1
SEALS PAGE	1
TABLE OF CONTENTS	4

DIVISION 00 – CONTRACT REQUIREMENTS

NOTICE INVITING BIDS.....	3
INSTRUCTION TO BIDDERS.....	7
BID PROPOSAL FORM.....	5
BID DEPOSIT FORM.....	1
LIST OF SUBCONTRACTORS.....	1
ELIGIBILITY CERTIFICATION.....	1
NON-COLLUSION DECLARATION.....	1
WORKERS COMPENSATION CERTIFICATION.....	1
CERTIFICATION FOR LOCAL PREFERENCE	1
BID QUESTION FORM.....	1
SUBSTITUTION REQUEST FORM	1
NOTICE OF AWARD	1
NOTICE TO PROCEED.....	1
PERFORMANCE BOND.....	1
PAYMENT BOND	1
FINGERPRINT CERTIFICATE	1
GENERAL CONDITIONS TABLE OF CONTENTS	3
GENERAL CONDITIONS	65
SUPPLEMENTARY CONDITIONS	1

DIVISION 01 – GENERAL REQUIREMENTS

011100 SUMMARY OF WORK	5
012500 SUBSTITUTION PROCEDURES.....	5
012600 CONTRACT MODIFICATION PROCEDURES	3
012900 PAYMENT PROCEDURES	5
013000 SUBMITTALS	6
013100 COORDINATION.....	6
013200 CONSTRUCTION PROGRESS DOCUMENTATION.....	4
014000 QUALITY REQUIREMENTS.....	11
014200 REFERENCES	19
015000 TEMPORARY FACILITIES AND CONTROLS	9
016000 PRODUCT REQUIREMENTS	4
017300 EXECUTION.....	11
017400 WARRANTIES.....	3
017700 CLOSEOUT PROCEDURES	7

DIVISION 02 – EXISTING CONDITIONS

(NOT USED)

DIVISION 03 – CONCRETE

033000	CAST-IN-PLACE CONCRETE.....	21
--------	-----------------------------	----

DIVISION 04 – MASONRY

(NOT USED)

DIVISION 05 – METALS

051200	STRUCTURAL STEEL FRAMING	10
--------	--------------------------------	----

DIVISION 06 – WOOD AND PLASTICS

(NOT USED)

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

(NOT USED)

DIVISION 08 – DOORS AND WINDOWS

(NOT USED)

DIVISION 09 – FINISHES

099100	PAINTING.....	15
--------	---------------	----

DIVISION 10 – SPECIALTIES

(NOT USED)

DIVISION 11 – EQUIPMENT

(NOT USED)

DIVISION 12 – FURNISHINGS

(NOT USED)

DIVISION 13 – SPECIAL CONSTRUCTION

(NOT USED)

DIVISION 14 – CONVEYING SYSTEMS

(NOT USED)

DIVISION 21 – FIRE SUPPRESSION

(NOT USED)

DIVISION 22 – PLUMBING

(NOT USED)

DIVISION 23 – MECHANICAL/PLUMBING

(NOT USED)

DIVISION 25 – INTEGRATED AUTOMATION

(NOT USED)

DIVISION 26 – ELECTRICAL

260100 ELECTRICAL SCOPE AND GENERAL REQUIREMENTS..... 9

DIVISION 27 – COMMUNICATIONS

(NOT USED)

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

(NOT USED)

DIVISION 31 – EARTHWORK

310513	SOILS FOR EARTHWORK.....	2
311100	SITE CLEARING	5
312000	EARTHWORK	7
312323	BACKFILL.....	3

DIVISION 32 – EXTERIOR IMPROVEMENTS

321313	CONCRETE PAVING AND WALKS	11
323113	CHAIN LINK FENCES	6

DIVISION 33 – UTILITIES

(NOT USED)

APPENDIX

	GEOTECHNICAL ENGINEERING INVESTIGATION.....	31
--	---	----

END OF SECTION

NOTICE INVITING BIDS
Kingsburg Joint Union High School District

Project: Kingsburg High School Proposed Ag Shop Canopy
Bid File No.: 02-118435

BID OVERVIEW

Separate, sealed bids for the construction of Kingsburg High School Proposed Ag Shop Canopy will be received by the Kingsburg Joint Union High School District ("District"), 1900 18th Avenue, Kingsburg, California 93631 at the date and time indicated on the District's online portal posting, at which time the Bids will be privately opened and recorded. Refer to additional specific bid requirements below.

Separate, sealed bids will be received on the Work described in the Contract Documents, and addressed and delivered to the following:

Mr. Rufino Ucelo, Jr., Chief Business Official
Kingsburg Joint Union High School District
1900 18th Avenue
Kingsburg, California 93631
Attn: Kingsburg HS Proposed Ag Shop Canopy / Bid File No. 02-118435

SCOPE OF WORK

The project consists of a proposed new concrete apron and metal shade canopy totaling approximately 1,800 sq. ft. adjacent to the existing agricultural shop and classroom building.

The proposed scope of work is generally divided into the following areas:

1. Demolition of existing concrete apron.
2. New concrete apron.
3. Shade canopy (metal building).
4. Minor barrier-removal upgrades at existing staff restrooms.

The Work consists of a new shade canopy adjacent to an existing building, and includes limited site demolition, concrete pavement, concrete, steel metal building elements, sheet metal, metal fabrications, metal roofing, painting, plumbing, electrical, and interior finishes.

PLANS AND SPECIFICATIONS

The Contract Documents will be available free of charge upon request by Bidders and accessed via the District's online portal posting. Please address your request for Contract Documents to the following:

Mr. Rufino Ucelo, Jr., Chief Business Official
rucelo@kingsburghigh.com

BID PROPOSAL FORMS

Bid Proposal Forms may be downloaded as directed by the District's online portal posting.

PUBLIC WORK PROJECT

The work hereunder constitutes a "public work" as defined in Chapter 1, Part 7, Division 2 of the California Labor Code, and Contractor shall cause the work to be performed as a "public work" project. The District requires general prevailing rate of per diem wages and per diem wages for holidays and overtime in the Kingsburg area for each craft, classification, or type of worker needed in the execution of contracts for the District. Prevailing Wage Schedules can be viewed at: <https://www.dir.ca.gov/OPRL/pwappwage/PWAppWageStart.asp>

BID DEPOSIT/BOND REQUIREMENTS

A Bid Deposit in the amount of Ten Percent (10%) of the Total Net Bid Amount (or, in bids with Add Alternates, the highest possible combination of the Base Bid plus Add Alternates) in the form of a certified or cashier's check, payable and acceptable to the District. Checks may be made payable to "Kingsburg Joint Union High School District," labeled accordingly with bid number, and delivered to the District Office to the attention of Mr. Rufino Ucelo, Jr., Chief Business Official. Bid Deposits will be held until a Contract has been executed with the successful Bidder or all bids have been rejected.

CONTRACTOR QUALIFICATIONS

Prospective Bidders shall be licensed Contractors in the State of California and shall be skilled and regularly engaged in the general class or type of work called for under the Contract.

No bid will be considered for award unless the Bidder, at the time of bid opening, is licensed with a valid Class "A" or "B" Contractor's License issued by the State of California.

Prospective Bidders must possess a current City of Kingsburg Business License with license number, issuance date, and expiration date.

The District hereby notifies all Bidders that no person shall be excluded from participation in, denied any benefits of, or otherwise discriminated against in connection with the award and performance of any contract on the basis of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, sex, age, sexual orientation, ethnicity, status as a disabled veteran or veteran of the Vietnam era or on any other basis prohibited by law.

Contractors and Subcontractors must meet any and all requirements of Labor Code sections 1771.1 and 1771.5 prior to submitting bids.

PRE-BID CONFERENCE

Pre-Bid Conference information can be obtained by visiting the District's online portal posting.

SIGNIFICANT CALENDAR DATES

Significant calendar dates can be obtained by visiting the District's online portal posting.

DISTRICT CONTACT

Project Manager: Mr. Roger Carender
Address: 1900 18th Ave., Kingsburg, CA 93631
Email: rcarender@kingsburghigh.com
Telephone: (559) 897-7721

ARCHITECT CONTACT

Contact Person: Mr. Philip Mettler
Address: 410 Park Creek Dr., Clovis, CA 93611
Email: phil.m@ttgarchitects.com
Telephone: (559) 708-4046

CONSTRUCTION ALLOCATION

Construction Allocation for this project is \$450,000.

The Construction Allocation is given for informational purposes only. This amount does not include other Project costs such as design, inspection, contingency, and Contract compliance and is not warranted to represent the District's estimated cost of construction for this Project.

INSTRUCTION TO BIDDERS
Kingsburg Joint Union High School District

Project: Kingsburg High School Proposed Ag Shop Canopy
Bid File No.: 02-118435

BID PROPOSALS WILL BE CONSIDERED FOR AWARD ONLY IF THE BIDDER HAS
COMPLIED WITH ALL REQUIREMENTS OF THESE BID DOCUMENTS

BID SUBMISSION

Bid Proposals shall be submitted on the forms furnished by the Kingsburg Joint Union High School District ("District"), with all documents listed on the Bid Proposal, completely filled out, properly signed by the Bidder and delivered, under sealed cover, plainly marked with Project Name and Bid File Number, to Mr. Rufino Ucelo, Jr., Chief Business Official, Kingsburg Joint Union High School District, 1900 18th Avenue, Kingsburg, California 93631 prior to the date and time specified on the District's online portal posting, when all bids will be privately opened and recorded. Bids received after the time indicated on the District's online portal posting will not be accepted.

In the event that both a paper and electronic bid for the same project are submitted, the District will use and accept the electronic version as the authorized submittal.

BID DEPOSIT

A Bid Deposit shall be made in accordance with paragraphs below. A bid without a proper Bid Deposit will be automatically rejected.

Bidders must submit a Bid Deposit in the amount of Ten Percent (10%) of the Total Net Bid Amount (or, in bids with Add Alternates, the highest possible combination of the Base Bid plus Add Alternates) with their Bid Proposal. Such Bid Deposit shall be in the form of a certified or cashier's check, payable to the Kingsburg Joint Union High School District.

The Bid Deposit of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid Security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, the District may annul the Notice of Award, and the Bid Security of that Bidder will be forfeited. The Bid Security of other Bidders whom the District believes to have a reasonable chance of receiving the award may be retained by the District until the earlier of seven days after the Effective Date of the Agreement or 61 days after the bid opening, whereupon Bid Security furnished by such Bidders will be returned.

Bid Security of other Bidders whom the District believes do not have a reasonable chance of receiving the award will be returned within seven days after the bid opening.

CONTRACT DEFINITIONS

Attention of Bidders is especially directed to all provisions of the Contract Documents, as defined in the General Conditions.

PREVAILING WAGE

The work hereunder constitutes a “public work” as defined in Chapter 1, Part 7, Division 2 of the California Labor Code, and Contractor shall cause the work to be performed as a “public work” project. The District requires general prevailing rate of per diem wages and per diem wages for holidays and overtime in the Kingsburg area for each craft, classification, or type of worker needed in the execution of contracts for the District. Prevailing Wage Schedules can be viewed at: <https://www.dir.ca.gov/OPRL/pwappwage/PWAppWageStart.asp>

LIQUIDATED DAMAGES

Provisions for liquidated damages, if any, are set forth in the Contract Documents.

FEDERAL IMMIGRATION REFORM AND CONTROL ACT

As a material part of any Contract for a Kingsburg Joint Union High School District project, every Contractor who has employees who will work on a District project, is required to comply with all of the provisions of the Federal Immigration Reform and Control Act of 1986 (P.L. 99-603, 100 Stat. 3359). This requirement includes compliance with all of the employee documentation provisions. The Contractor will make any employee documentation required to comply with the Act immediately available to the District upon its request for each individual employee working on a District project.

SITE AND OTHER AREAS

The site is identified in the Contract Documents. All additional land area and access thereto required for temporary construction facilities, equipment, or material storage are to be obtained and paid for by the Contractor.

VERIFICATION OF WORK

Before submitting a Bid Proposal, Bidders should inspect the Work site to verify the conditions under which the Work will be performed. The submittal of a Bid Proposal shall be considered prima facie evidence that the Bidder has reviewed the Contract Documents and job site conditions, is fully aware of the required Work and Work conditions, and has included within the Bid Proposal the appropriate amounts covering the cost of execution of the Work.

SUBCONTRACTORS

The Prime Contractor shall include with the Bid Proposal the name, location, and license number of each Subcontractor who will perform work or labor or render service under the Prime Contractor for Work detailed in the Contract Documents in an amount in excess of one half of one (1) percent of the Prime Contractor’s total bid.

Subcontractor Information: Additional details concerning any listed Subcontractor may be requested by the District and shall be submitted by the Prime Contractor within five (5) working days after the time of bid opening. Bidder shall submit written evidence such as financial data, experience, present commitments, and such other information requested.

The Prime Contractor shall list only one (1) Subcontractor for each portion of Work. Experience verification, where requested, to include three (3) similar projects completed in the last seven (7) years with Owner's names and contact information.

If the District or Architect, after due investigation, has reasonable objection to any proposed Subcontractor, the District may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the Bid. If apparent Successful Bidder declines to make any such substitution, the District may award the contract to the next lowest responsive Bidder that proposes to use acceptable Subcontractors. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid Deposit of any Bidder. Any Subcontractor so listed and against which the District or Architect makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to the District and Architect subject to revocation of such acceptance after the Effective Date of the Agreement.

Contractor shall not be required to employ any Subcontractor against whom Contractor has reasonable objection.

PRE-BID CONFERENCE

A Pre-Bid Conference may be held at the time and place indicated on the District's online portal posting.

BID QUESTIONS

The Contract Documents describing this project have been carefully prepared. Any questions relating to these Contract Documents shall be submitted in writing to Kingsburg Joint Union High School District to the attention of Mr. Rufino Ucelo, Jr., Chief Business Official. Neither the District nor Architect assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Contract Documents. A Bid Question Form for this purpose has been included at the end of Bidding Documents.

Questions will be accepted only up to 9 days (7 working days) days prior to the Bid Opening date to allow the District, if necessary, to issue an Addendum to all Bidders stating any revisions, deletions, or additions to be made to the Contract Documents. The District will not be responsible for verbal responses made by any other parties and these responses will not be binding or legally effective.

CONTACTS WITH DISTRICT STAFF

Before an award is made, any contact with District staff, other than the District's designated representative, without prior written authorization, is strictly prohibited and may render the Bidder non-responsive.

CONSTRUCTION ALLOCATION

Construction Allocation for this project is \$450,000.

SUBSTITUTION OF MATERIALS

The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, or “or-equal” materials and equipment as described in the General Conditions, or those substitute materials and equipment approved by District and identified by Addendum. The materials and equipment described in the Bidding Documents establish a standard of required type, function, and quality to be met by any proposed substitute or “or-equal” item. Request for District’s clarification of materials and equipment considered “or-equal” prior to the Effective Date of Agreement must be received by the District at least 14 days (10 working days) prior to the date for receipt of Bids. No item of material or equipment will be considered by District as a substitute unless written request for approval has been submitted by Bidder on the Substitution Request Form and has been received by District at least 14 days (10 working days) prior to the date for receipt of Bids. Each such request shall conform to the requirements of the General Conditions. The burden of proof of the merit of the proposed item is upon Bidder. District’s decision of approval or disapproval of a proposed item will be final. If District approves any proposed substitute item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.

PREPARATION OF BID

All blanks on the Bid Form shall be completed in ink and the Bid signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each item listed therein, or the words “No Bid,” “No Change,” or “Not Applicable” entered.

A Bid by a corporation shall be executed in the corporate name by the president or a vice president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be provided on the Bid Proposal.

A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be provided on the Bid Proposal.

A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.

A Bid by an individual shall show the Bidder’s name and business address.

A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture must be provided on the Bid Proposal.

All names shall be printed in ink below the signatures.

The Bid shall contain an acknowledgement of receipt of all Addenda, the numbers and dates of which shall be filled in on the Bid Proposal.

The postal and email addresses and telephone number of the Bidder shall be shown for communications regarding the Bid.

The Bid shall contain evidence of Bidder's authority and qualification to do business in the City of Kingsburg. Bidder's state contractor license number, if any, shall also be shown on the Bid Proposal.

SUBMITTAL OF BID

A Bid shall be submitted no later than the date and time prescribed and at the place indicated on the District's online portal posting and shall be enclosed in an opaque sealed envelope plainly marked with the Project Name (and, if applicable, the designated portion of the Project for which the Bid is submitted), the Bid File Number, the name and address of Bidder, and shall be accompanied by the Bid Deposit and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." When using the mail or other delivery system, the Bidder is totally responsible for the mail or other delivery system delivering the Bid at the place and prior to the time indicated on the District's online portal posting.

EXCEPTIONS

Any exceptions taken at the time of, or after, Bid submittal may render the Bidder non-responsive. Attachments by Bidders which include legal terms and conditions that conflict with the General Conditions may be considered an exception, and Bidder may, therefore, be considered non-responsive.

ERRORS AND OMISSIONS

A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

If within 24 hours after Bids are opened, any Bidder files a duly signed written notice with the District and promptly thereafter demonstrates to the reasonable satisfaction of the District that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned.

OPENING OF BIDS

Bids will be opened privately at the time and place indicated on the District's online portal posting. An abstract of the amounts of the Bids and alternates, if any, will be made available to Bidders after the opening of Bids.

EVALUATION OF BIDS AND AWARD OF CONTRACT

The District reserves the right to reject any or all Bids, including without limitation, non-conforming, non-responsive, or conditional Bids. The District further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsive. The District also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest

in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

In evaluating Bids, the District will consider whether or not the Bids comply with the prescribed requirements and such alternates, unit prices, and other data as may be requested in the Bid Proposal or prior to the Notice of Award.

In evaluating Bidders, the District will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors must be submitted.

The District may conduct such investigations as the District deems necessary to establish the responsibility, qualifications, and financial ability of Bidders or proposed Subcontractors to perform the Work in accordance with the Contract Documents.

If the Contract is to be awarded, the District will award the Contract to the responsible Bidder whose Bid, conforming with all terms and conditions of the Instructions to Bidders, is the lowest price and other factors considered.

BID APPEAL PROCEDURE

Once the District has reviewed and evaluated the Bid Proposals received and has determined the lowest responsive and responsible Bidder for award, that determination will be announced at the District's Board Meeting at a date and time to be determined.

Should Bidders wish to appeal the District's determination, appeals must be received in writing within five (5) working days from the time the determination is posted. In no event will appeals be accepted later than 5:00 p.m. on the day before District is scheduled to take action on the Contract Award.

Letters of appeal must clearly state why it is felt the staff's determination of Bid Award is to someone other than the lowest responsive and responsible Bidder, or outside the procedural requirements for the submission and opening of Bids.

Appeals not submitted within the stated time will not be honored, and the District will proceed to award the Contract.

SIGNING OF AGREEMENT

When District gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached hereto. Within 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to the District. Within 10 days thereafter, the District shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

WORKERS' COMPENSATION REQUIREMENTS

As required by Section 1860 of the California Labor Code and in accordance with the provisions of Section 3700 of the Labor Code, every Bidder will be required to secure the payment of workers' compensation to its employees.

In accordance with Section 1861 of the California Labor Code, the Contractor shall furnish the District with a statement as follows: "I am aware of the provisions of 3700 of the Labor Code which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing with performance of the work of this contract."

OUTREACH TO SMALL BUSINESS ENTERPRISES IN SUBCONTRACTING

Kingsburg Joint Union High School District hereby notifies all Bidders that it is the District's policy to provide all small business enterprises equal access and opportunity for participation in the performance of all construction contracts, professional service contracts, and procurement of supplies, equipment, and other services. Therefore, the District requests that a Bidder who intends to subcontract a portion of the work seek out small business enterprises that are potential subcontractors, suppliers, or consultants, and actively solicit their interest, capability, and prices.

BIDDER: _____

BID PROPOSAL FORM
Kingsburg Joint Union High School District

Project: Kingsburg High School Proposed Ag Shop Canopy
Bid File No.: 02-118435

TO: _____ of the Kingsburg Joint Union High School District ("District")

The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the District in the form included in the Bidding Documents. Having carefully examined the location of the hereinafter described Work, the plans and specifications therefore, Bidder hereby proposes to furnish all materials, labor, and equipment necessary to complete the project for the prices and within the times and in accordance with other terms and conditions of the Bidding Documents set forth in the following bid items:

BASE BID				
Item	Item Summary Description	Quantity	Unit Price	Total Bid Price
1		N/A	N/A	\$ _____
Total Base Bid written in words: _____				
Note: 1. Bid prices shall be in full dollar amounts only. 2. In event of a conflict between words and numbers, words shall prevail.				

ACKNOWLEDGEMENT OF RECEIPT OF ADDENDA

In submitting this Bid, the Bidder acknowledges receipt of the following Addenda:

Addendum No.	Addendum Date

BIDDER: _____

BIDDER’S ACKNOWLEDGEMENTS

- 1. Bidder accepts all of the terms and conditions of the Instructions to Bidders.
- 2. Bidder has examined and carefully studied the Bidding Documents and the other related data identified in the Bidding Documents. Bidders must bid all bid items (including any Alternates). The Bidder is non-responsive and ineligible for award in the event Bidder fails to initial this paragraph on the line provided and completely fill in this Bid Proposal Form including, without limitation, all dollar amounts and information called for on this Bid Proposal Form. By his or her initials to the right hereof, Bidder represents he or she has read and understands the consequences of failing to completely fill in this Bid Proposal Form. _____
Initial
- 3. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, and performance of the Work.
- 4. Bidder is familiar with and is satisfied with all Federal, State, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- 5. Bidder has carefully studied all reports included in the Bidding Documents. These may include, but may not be limited to, Geotechnical Reports, Surveys, and Hazardous Materials Reports.
- 6. Bidder is aware of the Work to be performed by the District and others contracted separately with the District at the site that relates to the Work as indicated in the Bidding Documents.
- 7. Bidder is familiar with the construction, construction supervision, project closeout, and project certification procedures and requirements of the California Division of the State Architect (DSA) which are applicable to this Project including, but not limited to, those delineated in the DSA Project Certification Guide and DSA Procedures PR 13-01 and PR 13-02. _____
Initial
- 8. Bidder has transmitted written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution in the form of Addenda is acceptable to Bidder. By his or her initials to the right hereof, Bidder represents he or she acknowledges the completeness of the Bidding Documents including all Addenda. _____
Initial

TIME OF COMPLETION/LIQUIDATED DAMAGES

The selected Bidder shall work with the District to establish the final Project and Schedule.

The Contractor shall diligently prosecute the Work to completion for all bid items based on the number of working days indicated in the Contract.

The Bidder accepts the requirements for liquidated damages included in the Contract.

BIDDER: _____

It is agreed that the Contractor shall be liable for and shall pay to the District, as fixed, and agreed, liquidated damages, and not as a penalty, the sum of \$100.00 per day for each calendar day of delay in completion of the Work from the Date for Completion as specified herein or in any written extension of time granted by the District. The number of weather delay days will require written approval by the District to extend the final completion date. Liquidated damages will be deducted from payments.

ADDENDA

Although every effort is made to issue Addenda to all Bidders of Record, it is the Bidder's responsibility to inquire as to whether the Bidder has received all of the Addenda.

RIGHT TO REJECT ANY AND ALL BIDS

The District reserves the right to reject any and all bids.

TIME PERIOD TO AWARD/REJECT BIDS

The undersigned Bidder agrees that the District may have 60 days from the date Bids are opened to accept or reject this Bid Proposal. It is further understood that if the Bidder to whom any award is made fails to enter into a Contract as provided in the Contract Documents, award may be made to the next lowest responsive and responsible Bidder, who shall be bound to perform as if he/she had received the award in the first instance. No Bid Proposal may be withdrawn prior to award within that time period.

AWARD OF CONTRACT

When Bids are submitted to the District, the award will be made to the lowest responsive and responsible Bidder, subject to the right to reject any and all Bids.

MINOR IRREGULARITIES

The District reserves the right to waive any informality or minor irregularity that does not have a monetary consideration when it is in the best interest of the public and of the District to do so. A discrepancy as determined by the District that offers a Bidder an unfair advantage will cause the Bid to be non-responsive.

ATTACHMENTS TO THIS BID

The following documents are attached to and made a condition of this Bid:

1. Required Bid Deposit in the form described in the Instructions to Bidders
2. List of Subcontractors
3. If total Bid amount exceeds \$25,000, signed Eligibility Certification regarding Ineligible Bidders/Contractors
4. If total Bid amount exceeds \$100,000, signed Non-Collusion Declaration
5. Workers' Compensation Certification

BIDDER: _____

6. Certification for Local Preference

SIGNATURE

This bid is submitted by: _____

Bidder's Business Address: _____

Phone: _____ E-mail: _____

Submitted on: _____, 20____

State Contractor License No.: _____

Employer's Tax ID No.: _____

Provide signature commensurate with one of the following:

An Individual

Name (typed or printed): _____

By: _____
(Individual's signature)

Doing business at: _____

A Partnership

Partnership Name: _____ (SEAL)

By: _____
(Signature of General Partner – attach evidence of authority to sign)

Name (typed or printed): _____

BIDDER: _____

A Corporation

Corporation Name: _____ (SEAL)

State Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____
(Signature – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Attest: _____
(Signature of Corporate Secretary)

Date of Qualification to do business in California is _____/_____/_____

A Joint Venture (each Joint Venturer must sign)

Name of Joint Venture: _____

First Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of first Joint Venture Partner – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Second Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of second Joint Venture Partner – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

BIDDER: _____
(Submit with Bid Proposal)

BID DEPOSIT FORM
Kingsburg Joint Union High School District

Project: Kingsburg High School Proposed Ag Shop Canopy
Bid File No.: 02-118435

Accompanying this bid proposal is a Bid Deposit in the amount of Ten Percent (10%) of the Total Net Bid Amount (or, in bids with Add Alternates, the highest possible combination of the Base Bid plus Add Alternates) in the following form:

- Certified Check Cashier's Check

Bid Deposit is deposited by the undersigned Bidder with the District as a guarantee that the Bidder, if awarded all or part of the Contract, will, within 15 calendar days from the date the Notice of Award is mailed to the Bidder, execute and return a Contract furnished by the District.

Such Deposit is made with the understanding that failure to execute such Contract will result in damage to the District, that the amount of such damage would be difficult to determine, and that, in the event of such default, said Deposit shall become the property of the District; or, if a Bidder's Deposit is deposited, the amount of the obligation thereof, but not more than the above stated amount, shall thereupon be due and payable to the District as liquidated damages for such default, payment of said amount to be the joint and several obligation of the Bidder and the corporate surety.

CONTRACTOR'S LICENSE

The undersigned Bidder holds a valid Class _____ State of California Contractor's License. The License Number is _____ and was issued on _____. Expiration date: _____

BUSINESS LICENSE

- () The undersigned Bidder has a current City of Kingsburg Business License
Number: _____
Issuance Date: _____
Expiration Date: _____

If the successful Bidder does not have a City of Kingsburg Business License, he/she shall obtain such license prior to the issuance of a Notice to Proceed for the Work and maintain in effect throughout the term of this Contract.

BIDDER: _____
(Submit with Bid Proposal)

LIST OF SUBCONTRACTORS
Kingsburg Joint Union High School District

Project: Kingsburg High School Proposed Ag Shop Canopy
Bid File No.: 02-118435

Pursuant to the provisions of California Public Contract Code Sections 4100 and 4113 inclusive, the List of Subcontractors below details who will perform work or labor or render service to the Contractor in an amount in excess of one-half of one (1) percent of the Prime Contractor's total bid. All work not listed below shall be performed by the Bidder. It is understood that the Bidder, if awarded the Contract, shall not substitute any Subcontractor in place of the Subcontractors herein designated, or sublet or subcontract any of the work as to which a Subcontractor is not herein designated without the written consent of the Kingsburg Joint Union High School District.

LIST OF SUBCONTRACTORS				
Work to be Performed	Percentage of Total Contract	Name of Subcontractor	Location	Contractor License No.

(Add additional sheets if necessary)

BIDDER SIGNATURE: _____

Date: _____

BIDDER: _____
(Submit with Bid Proposal)

ELIGIBILITY CERTIFICATION
Kingsburg Joint Union High School District

Project: Kingsburg High School Proposed Ag Shop Canopy
Bid File No.: 02-118435

The Bidder certifies under penalty of perjury under the laws of the State of California that his or her business or the corporation is not listed on the Comptroller General's List of Ineligible Bidders/Contractors.

The above Certification is part of the Bid Proposal. Signing this Bid Proposal on the signature page thereof shall also constitute signature of this Certification.

BIDDER: _____
(Submit with Bid Proposal)

NON-COLLUSION DECLARATION
Kingsburg Joint Union High School District

Project: Kingsburg High School Proposed Ag Shop Canopy
Bid File No.: 02-118435

The Bidder declares under penalty of perjury under the laws of the State of California all of the following paragraph is true and correct:

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The Bidder has not directly or indirectly induced or solicited any other Bidder to put in a false or sham bid. The Bidder has not directly or indirectly colluded, conspired, connived, or agreed with any other Bidder or anyone else to put in a sham bid, or to refrain from bidding. The Bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the Bidder or any other Bidder, or to fix any overhead, profit, or cost element of the bid price, or that of any other Bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract. All statements contained in the Bid Proposal are true. The Bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose. Any person executing this declaration on behalf of the Bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he/she has full power to execute, and does execute, this declaration on behalf of the Bidder.

Printed Name: _____

Signature: _____

Subscribed and sworn to before me on: _____
(date)

(Notary Public)

(Seal)

BIDDER: _____
(Submit with Bid Proposal)

WORKERS' COMPENSATION CERTIFICATION
Kingsburg Joint Union High School District

Project: Kingsburg High School Proposed Ag Shop Canopy
Bid File No.: 02-118435

State of California
County of Fresno

I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation, or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this Contract.

(Name of Contractor)

By: _____
(Printed Name)

(Signature)

Date: _____

BIDDER: _____
(Submit with Bid Proposal)

**CERTIFICATION FOR LOCAL PREFERENCE
Kingsburg Joint Union High School District**

Project: Kingsburg High School Proposed Ag Shop Canopy
Bid File No.: 02-118435

We certify that we qualify as a local business pursuant to the Kingsburg Municipal Code.

Location of Business:
Please provide street address
(PO Box not permitted)

Primary Office
Branch Office

Address: _____

Phone: _____

The undersigned Bidder hereby declares under penalty of perjury under the laws of the State of California that the information contained on this Certification for Local Preference is correct and complete.

The above Certification is part of the Bid Proposal. Signing this Bid Proposal on the signature page thereof shall also constitute signature of this Certification.

- Bidder will self-perform at least 30% of the contract amount with residents of Fresno County.
- Not applicable.

And:

- Bidder affirms at least 50% of the total value of the contract will be performed by either the Bidder or subcontractors meeting the local preference criteria.
- Not applicable.

BIDDER: _____

BID QUESTION FORM
Kingsburg Joint Union High School District

<p>Bid Question for:</p> <p>Project: Kingsburg High School Proposed Ag Shop Canopy</p> <p>Bid File No.: 02-118435</p> <p>Date: _____</p>	<p>Responsible for Response:</p> <p>District: Mr. Rufino Ucelo, Jr. Chief Business Official rucelo@kingsburghigh.com</p>
<p>From: _____</p> <p>Company: _____</p> <p>Contact Person: _____</p>	<p>Date: _____</p> <p>Phone No.: _____</p>
<p>Question (one question per sheet) _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	
<p>Response Included in Addendum No. _____</p>	

One question per page – duplicate this form as necessary.

BIDDER: _____

SUBSTITUTION REQUEST FORM

Project: Kingsburg High School Proposed Ag Shop Canopy
Bid File No.: 02-118435

Substitution Requests must be included during the Bid process. Substitution Requests after award of Contract will require additional justification.

We hereby submit for your consideration the following product instead of the specified item for the above project:

SECTION	PARAGRAPH	SPECIFIED ITEM

Proposed Substitution: _____

Attach complete technical data, including laboratory tests, if applicable.

Include complete information on changes to Drawings and/or Specifications which proposed substitution will require for its proposed installation.

Fill in the blanks below: *(each item requires a response)*

- A. Does the substitution affect dimensions on Drawings?

- B. Will the undersigned pay for changes to the building design, including engineering and detailing costs caused by the requested substitution?

- C. What affect does substitution have on other trades?

- D. Specific detailed comparison between proposed substitution and specified item:

- E. Manufacturer's warranties of the proposed and specified items are:
_____ Same _____ Different
(explain on attachment)

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

Submitted to the Architect by:

Signature: _____
Firm: _____
Address: _____

Date: _____

Telephone: _____

For Use by Design Professional:

Accepted _____
Accepted as Noted _____
Not Accepted _____
Received Too Late _____

By: _____

Date: _____

Remarks: _____

NOTICE OF AWARD
Kingsburg Joint Union High School District

Project: Kingsburg High School Proposed Ag Shop Canopy
Bid File No.: 02-118435

Date of Issuance: _____
Owner: Kingsburg Joint Union High School District
District's Contract No.: _____
Project Address: _____
Bidder: _____
Bidder's Address: _____

TO BIDDER:

You are notified that the District has accepted your Bid dated _____, 20__ for the above Contract, and that you are the Successful Bidder with the lowest calculated responsive bid, and are awarded a Contract for:

Kingsburg High School Proposed Ag Shop Canopy

The Contract Price of the awarded Contract is: \$_____

Successful Bidder must comply with the following conditions within 15 days of the date of receipt of this Notice of Award:

1. Deliver to District _____ copies of the Agreement, fully executed by Bidder.
2. Deliver the executed Agreement, Contract Security (Performance and Payment Bonds), and insurance documentation as specified in the Instruction to Bidders and General Conditions.

Failure to comply with these conditions within the time specified will entitle the District to consider you in default, annul this Notice of Award, and declare your Bid Security forfeited.

Within 10 days after you comply with the above conditions, the District will return to you one fully executed counterpart of the Agreement, together with copies of the Contract Documents as indicated in the General Conditions.

District: _____
(Authorized Signature)

By: _____

Title: _____

NOTICE TO PROCEED
Kingsburg Joint Union High School District

Project: Kingsburg High School Proposed Ag Shop Canopy
Bid File No.: 02-118435

Owner: Kingsburg Joint Union High School
District

District Contract No.: _____

Contractor: _____

Contract Date: _____

Project _____
Address: _____

Effective Date of Contract: _____

District hereby notifies Contractor that the Contract times under the above Contract will commence to run on _____, 20____. (see *General Conditions*)

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, the Date of Substantial Completion is _____.

Before starting any Work at the Site, Contractor must comply with the following:

Access limitations, security procedures, COVID-19 protocols, and other restrictions as noted on the District's online portal posting.

ACCEPTANCE OF NOTICE:

Acknowledge acceptance of this Notice to Proceed by returning a signed copy to the District within three (3) days of this Notice to Proceed. Receipt of this Notice to Proceed is acknowledged by the Contractor's signature and delivery to the District.

Contractor: _____

By: _____
(Authorized Signature)

Title: _____

Date Issued: _____

PERFORMANCE BOND
Kingsburg Joint Union High School District

Project: Kingsburg High School Proposed Ag Shop Canopy
Bid File No.: 02-118435

CONTRACTOR:

(Name)

(Address)

SURETY:

(Name)

(Address)

OWNER:

Kingsburg Joint Union High School District
1900 18th Ave.
Kingsburg, CA 93631

CONSTRUCTION CONTRACT

Effective Date of the Contract: _____

Contract Amount: _____

Project Name: _____

Project Address: _____

BOND

Bond Number: _____

Date: _____

Amount: _____

Modifications to this Bond Form: None

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

(Contractor's Name and Corporate Seal) *(seal)*

By: _____
Signature

Print Name

Title

Attest: _____
Signature

Title

SURETY

(Surety's Name and Corporate Seal) *(seal)*

By: _____
Signature *(attach Power of Attorney)*

Print Name

Title

Attest: _____
Signature

Title

PAYMENT BOND
Kingsburg Joint Union High School District

Project: Kingsburg High School Proposed Ag Shop Canopy
Bid File No.: 02-118435

CONTRACTOR:

(Name)

(Address)

SURETY:

(Name)

(Address)

OWNER:

Kingsburg Joint Union High School District
1900 18th Ave.
Kingsburg, CA 93631

CONSTRUCTION CONTRACT

Effective Date of the Contract: _____
Contract Amount: _____
Project Name: _____
Project Address: _____

BOND

Bond Number: _____
Date: _____
Amount: _____
Modifications to this Bond Form: None

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

_____ (seal)
(Contractor's Name and Corporate Seal)

By: _____
Signature

Print Name

Title

Attest: _____
Signature

Title

SURETY

_____ (seal)
(Surety's Name and Corporate Seal)

By: _____
Signature (*attach Power of Attorney*)

Print Name

Title

Attest: _____
Signature

Title

FINGERPRINT CERTIFICATE
Kingsburg Joint Union High School District

Project: Kingsburg High School Proposed Ag Shop Canopy
Bid File No.: 02-118435

I, _____, am the _____ of
(Print Name) (Title)

_____, I declare, state, and certify all the following:
(Contractor Name)

1. I am aware of the provisions and requirements of California Education Code § 45125.1, regarding fingerprinting of persons providing services to school districts.
2. I have personal knowledge of and/or have made due and diligent inquiry with respect to the following, and based on said knowledge and/or inquiry I certify that:
 - A. The fingerprints of each person providing services to the school district have been submitted to the California Department of Justice pursuant to Education Code § 45125.1; and,
 - B. The California Department of Justice has issued written or electronic verification that each person has not been convicted of a felony, as defined in Education Code § 45122.1, and has no criminal felony proceedings, as defined in Education Code § 45122.1, pending against him or her.
3. The Contractor shall provide fingerprint certification for each and every person prior to permitting such person(s) access to the work site or to perform any work at the site.
4. Contractor and I understand that if the District determines that Contractor has either: (a) made a false certification herein, or (b) violates this certification by failing to carry out and to implement the requirements of California Education Code § 45125.1, the Contract awarded herein is subject to termination, suspension of payments, or both.
5. I am authorized to execute this Fingerprint Certificate on behalf of the Contractor. All of the statements set forth above and all of the information provided are true, correct, complete, and accurate. Further, there are no omissions or misstatements of material fact in the foregoing statements or in the information set forth which would render such statements and/or information to be false or misleading.

I declare under penalty of perjury under the laws of the State of California that all of the foregoing is true and correct.

Executed at _____ this ____ day of _____, 20____.

(Signature)

(Handwritten or Type Name)

GENERAL CONDITIONS
TABLE OF CONTENTS

ARTICLE 1.	GENERAL PROVISIONS
1.1	Basic Definitions
1.2	Ownership and Use of Contract Documents
1.3	Interpretation
ARTICLE 2.	DISTRICT
2.1	Information and Services Provided by District
2.2	Access to Project Site
2.3	District's Right to Stop the Work
2.4	District's Right to Carry Out the Work
2.5	District's Right to Replace District's Representative
ARTICLE 3.	CONTRACTOR
3.1	Review of Contract Documents and Field Conditions by Contractor
3.2	Supervision and Construction Procedures
3.3	Labor and Materials
3.4	Contractor's Warranty
3.5	Taxes
3.6	Permits, Fees, and Notices
3.7	Applicable Code Requirements
3.8	Superintendent
3.9	Schedules Required of Contractor
3.10	As-Built Documents
3.11	Documents and Samples at Project Site
3.12	Shop Drawings, Product Data, and Samples
3.13	Use of Site and Clean Up
3.14	Cutting, Fitting, and Patching
3.15	Access to Work
3.16	Royalties and Patents
3.17	Differing Site Conditions
3.18	Concealed, Unforeseen, or Unknown Conditions or Events
3.19	Hazardous Materials
3.20	Information Available to Bidders
3.21	Liability for and Repair of Damaged Work
3.22	Indemnification
ARTICLE 4.	ADMINISTRATION OF THE CONTRACT
4.1	Administration of the Contract by District's Representative
4.2	Contractor Change Order Requests

4.3	Claims
4.4	Assertion of Claims
4.5	Decision of District's Representative on Claims
4.6	Mediation
4.7	Arbitration
4.8	Waiver
ARTICLE 5.	SUBCONTRACTORS
5.1	Award of Subcontracts and Other Contracts for Portions of the Work
5.2	Subcontractual Relations
5.3	Contingent Assignment of Subcontracts
ARTICLE 6.	CONSTRUCTION BY DISTRICT OR BY SEPARATE CONTRACTORS
6.1	District's Right to Perform Construction and to Award Separate Contracts
6.2	Mutual Responsibility
6.3	District's Right to Clean Up
ARTICLE 7.	CHANGES IN THE WORK
7.1	Changes
7.2	Definitions
7.3	Change Order Procedures
7.4	Field Orders
7.5	Variation in Quantity of Unit Price Work
7.6	Waiver
ARTICLE 8.	CONTRACT TIME
8.1	Commencement of the Work
8.2	Progress and Completion
8.3	Delay
8.4	Adjustment of the Contract Time for Delay
8.5	Compensation for Delay
8.6	Waiver
ARTICLE 9.	PAYMENTS AND COMPLETION
9.1	Cost Breakdown
9.2	Progress Payment
9.3	Application For Payment
9.4	Certificate For Payment
9.5	Deposit of Securities in Lieu of Retention and Deposit of Retention Into Escrow
9.6	Beneficial Occupancy
9.7	Substantial Completion
9.8	Final Completion and Final Payment

ARTICLE 10.	PROTECTION OF PERSONS AND PROPERTY
10.1	Safety Precautions and Programs
10.2	Safety of Persons and Property
10.3	Emergencies
ARTICLE 11.	<i>(NOT USED)</i>
ARTICLE 12.	UNCOVERING AND CORRECTION OF WORK
12.1	Uncovering of Work
12.2	Correction of Defective Work and Guarantee to Repair Period
ARTICLE 13.	TERMINATION OR SUSPENSION OF THE CONTRACT
13.1	Termination by Contractor
13.2	Termination by District for Cause
13.3	Suspension by District for Convenience
13.4	Termination by District for Convenience
ARTICLE 14.	STATUTORY AND OTHER REQUIREMENTS
14.1	<i>(NOT USED)</i>
14.2	Nondiscrimination
14.3	Prevailing Wage Rates
14.4	Payroll Records
14.5	Apprentices
14.6	Work Day
ARTICLE 15.	MISCELLANEOUS PROVISIONS
15.1	Governing Law
15.2	Successors and Assigns
15.3	Rights and Remedies
15.4	Survival
15.5	Complete Agreement
15.6	Severability of Provisions
15.7	District's Right to Audit
15.8	Methods of Delivery for Specified Documents
15.9	Time of the Essence
15.10	Mutual Duty to Mitigate

ARTICLE 1

GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 APPLICABLE CODE REQUIREMENTS

The term "Applicable Code Requirements" means all laws, statutes, the most recent building codes, ordinances, rules, regulations, and lawful orders of all public authorities having jurisdiction over District, Contractor, any Subcontractor, the Project, the Project site, the Work, or the prosecution of the Work including without limitation the requirements set forth in Article 3.7.

1.1.2 APPLICATION FOR PAYMENT

The term "Application For Payment" means the submittal from Contractor wherein payment for certain portions of the completed Work is requested in accordance with Article 9.

1.1.3 BENEFICIAL OCCUPANCY

The term "Beneficial Occupancy" means the District's occupancy or use of any part of the Work in accordance with Article 9.

1.1.4 CERTIFICATE FOR PAYMENT

The term "Certificate For Payment" means the form signed by District's Representative attesting to the Contractor's right to receive payment for certain completed portions of the Work in accordance with Article 9.

1.1.5 CHANGE ORDER

See Article 7.2 of the General Conditions.

1.1.6 CLAIM

See Article 4.3 of the General Conditions.

1.1.7 COMPENSABLE DELAY

The term "Compensable Delay" means a delay that entitles the Contractor to an adjustment of the Contract Sum and an adjustment of the Contract Time pursuant to Articles 7 and 8 of the General Conditions.

1.1.8 CONTRACT

The term “Contract” shall have the meaning identified in Article 2 of the Agreement.

1.1.9 CONTRACT DOCUMENTS

The term “Contract Documents” means all documents listed in Article 2 of the Agreement, as modified by Change Order, including but not limited to the Drawings and Specifications.

1.1.10 CONTRACT MILESTONE

The term “Contract Milestone” means any requirement in the Contract Documents that reflects a planned point in time for the start or completion of a portion of the Work measured from i) the date of the Notice to Proceed or ii) the date of another Contract Milestone defined in the Contract Documents, as applicable.

1.1.11 CONTRACT SCHEDULE

The term “Contract Schedule” means the graphical representation of a practical plan, in accordance with the Specifications, to perform and complete the Work within the Contract Time in accordance with Article 3.

1.1.12 CONTRACT SUM

The term “Contract Sum” means the amount of compensation stated in the Agreement for the performance of the Work, as adjusted by Change Order.

1.1.13 CONTRACT TIME

The term “Contract Time” means the number of days set forth in the Agreement, as adjusted by Change Order, within which Contractor must achieve Final Completion.

1.1.14 CONTRACTOR

The term “Contractor” means the person or firm identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number.

1.1.15 CONTRACTOR FEE

See Article 7.3 of the General Conditions.

1.1.16 COST OF EXTRA WORK

See Article 7.3 of the General Conditions.

1.1.17 DAY

The term “day,” as used in the Contract Documents, shall mean calendar day, unless otherwise specifically provided.

1.1.18 DEFECTIVE WORK

The term “Defective Work” means work that is unsatisfactory, faulty, omitted, incomplete, deficient, or does not conform to the requirements of the Contract Documents, directives of District, District’s Building Official, or District’s Representative, or the requirements of any inspection, reference standard, test, or approval specified in the Contract Documents.

1.1.19 DISTRICT

The term “District” means Kingsburg Joint Union High School District.

1.1.20 DISTRICT’S BUILDING OFFICIAL

The term “District’s Building Official” means the individual the District has designated to act in the capacity as the “Building Official” as defined by the California Building Standards Code. The District’s Building Official will determine whether the Work complies with Applicable Code Requirements and will determine whether and when it is appropriate to issue a Certificate of Occupancy.

1.1.21 DISTRICT’S REPRESENTATIVE

The term “District’s Representative” means the person or firm identified as such in the Agreement.

1.1.22 DISTRICT’S RESPONSIBLE ADMINISTRATOR

The term “District’s Responsible Administrator” means the person, or his or her authorized designee, who is authorized to execute the Agreement, Change Orders, Field Orders, and other applicable Contract Documents on behalf of the District.

1.1.23 DRAWINGS

The term “Drawings” means the graphic and pictorial portions of the Contract Documents showing the design, location, and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams. The Drawings are listed in the List of Drawings.

1.1.24 EXCUSABLE DELAY

The term “Excusable Delay” means a delay that entitles the Contractor to an adjustment of the Contract Time but not an adjustment of the Contract Sum, pursuant to Articles 7 and 8 of the General Conditions.

1.1.25 EXTRA WORK

The term “Extra Work” means Work beyond or in addition to the Work required by the Contract Documents.

1.1.26 FIELD ORDER

See Article 7.2 of the General Conditions.

1.1.27 FINAL COMPLETION

The term “Final Completion” means the date at which the Work has been fully completed in accordance with the requirements of the Contract Documents pursuant to Article 9.8.1 of the General Conditions.

1.1.28 GUARANTEE TO REPAIR PERIOD

See Article 12.2 of the General Conditions.

1.1.29 HAZARDOUS MATERIAL

The term “Hazardous Material” means any substance or material identified as hazardous under any California or federal statute governing handling, disposal and/or cleanup of any such substance or material.

1.1.30 PROJECT

The term “Project” means the Work of the Contract and all other work, labor, equipment, and materials necessary to accomplish the Project. The Project may include construction by District or by Separate Contractors.

1.1.31 SEPARATE CONTRACTOR

The term “Separate Contractor” means a person or firm under separate contract with District performing other work related to the Project.

1.1.32 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

See Article 3.12 of the General Conditions.

1.1.33 SPECIFICATIONS

The term “Specifications” means that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards and workmanship for the Work, and performance of related services.

1.1.34 SUBCONTRACTOR

The term “Subcontractor” means a person or firm that has a contract with Contractor or with a Subcontractor to perform a portion of the Work. Unless otherwise specifically provided, the term Subcontractor includes Subcontractors of all tiers.

1.1.35 SUBSTANTIAL COMPLETION

See Article 9.7 of the General Conditions.

1.1.36 SUPERINTENDENT

The term “Superintendent” means the person designated by Contractor to represent Contractor at the Project site in accordance with Article 3.

1.1.37 TIER

The term “tier” means the contractual level of a Subcontractor or supplier with respect to Contractor. For example, a first-tier Subcontractor is under subcontract with Contractor, a second-tier Subcontractor is under subcontract with a first-tier Subcontractor, and so on.

1.1.38 UNEXCUSABLE DELAY

The term “Unexcusable Delay” means a delay that does not entitle the Contractor to an adjustment of the Contract Sum and does not entitle the Contractor to an adjustment of the Contract Time.

1.1.39 UNILATERAL CHANGE ORDER

See Article 7.2 of the General Conditions.

1.1.40 WORK

The term “Work” means all construction, services, and other requirements of the Contract Documents as modified by Change Order, whether completed or partially completed, and includes all labor, materials, equipment, tools, and services provided or to be provided by Contractor to fulfill Contractor's obligations. The Work may constitute the whole or a part of the Project.

1.2 OWNERSHIP AND USE OF CONTRACT DOCUMENTS

1.2.1 The Contract Documents and all copies thereof furnished to or provided by Contractor are the property of the District and are not to be used on other work.

1.3 INTERPRETATION

1.3.1 The Contract Documents are complementary and what is required by one shall be as binding as if required by all. In the case of conflict between terms of the Contract Documents, the following order of precedence shall apply:

- .1 The Agreement,
- .2 The Supplementary Conditions,
- .3 The General Conditions,
- .4 The Specifications,
- .5 The Drawings.

1.3.2 With respect to the Drawings, figured dimensions shall control over scaled measurements and specific details shall control over typical or standard details.

1.3.3 With respect to the Contract Documents, Addenda shall govern over other portions of the Contract Documents to the extent specifically noted; subsequent Addenda shall govern over prior Addenda only to the extent specifically noted.

1.3.4 Organization of the Specifications into various subdivisions and the arrangement of the Drawings shall not control Contractor in dividing the Work among Subcontractors or in establishing the extent of work to be performed by any trade.

1.3.5 Unless otherwise stated in the Contract Documents, technical words and abbreviations contained in the Contract Documents are used in accordance with commonly understood construction industry meanings; and non-technical words and abbreviations are used in accordance with their commonly understood meanings.

1.3.6 The Contract Documents may omit modifying words such as “all” and “any,” and articles such as “the” and “an,” but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement. The use of the word “including,” when following any general statement, shall not be construed to limit such statement to specific items or matters set forth immediately following such word or to similar items or matters, whether or not nonlimiting language (such as “without limitation,” “but not limited to,” or words of similar import) is used with reference thereto, but rather shall be deemed to refer to all other items or matters that could reasonably fall within the broadest possible scope of such general statement.

1.3.7 Whenever the context so requires, the use of the singular number shall be deemed to include the plural and vice versa. Each gender shall be deemed to include any other gender, and each shall include corporation, partnership, trust, or other legal entity whenever the context so requires. The captions and headings of the various subdivisions of the Contract Documents are intended only for reference and convenience and in no way define, limit, or prescribe the scope or intent of the Contract Documents or any subdivision thereof.

END OF ARTICLE 1

ARTICLE 2

DISTRICT

2.1 INFORMATION AND SERVICES PROVIDED BY DISTRICT

2.1.1 If required for performance of the Work, as determined by District's Representative, District will make available a survey describing known physical characteristics, boundaries, easements, and utility locations for the Project site.

2.1.2 District is not subject to any requirement to obtain or pay for local building permits, inspection fees, plan checking fees, or certain utility fees. Except as otherwise provided in the Contract Documents, District will obtain and pay for any utility permits, demolition permits, easements, and government approvals for the use or occupancy of permanent structures required in connection with the Work.

2.1.3 Contractor will be furnished, free of charge, such copies of the Contract Documents as District deems reasonably necessary for execution of the Work.

2.2 ACCESS TO PROJECT SITE

2.2.1 District will provide, no later than the date designated in the Contract Schedule accepted by District's Representative, access to the lands and facilities upon which the Work is to be performed, including such access and other lands and facilities designated in the Contract Documents for use by Contractor.

2.3 DISTRICT'S RIGHT TO STOP THE WORK

2.3.1 If Contractor fails to correct Defective Work as required by Article 12.2 or fails to perform the Work in accordance with the Contract Documents, District or District's Representative may direct Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated by Contractor. Contractor shall not be entitled to any adjustment of Contract Time or Contract Sum as a result of any such order. District and District's Representative have no duty or responsibility to Contractor or any other party to exercise the right to stop the Work.

2.4 DISTRICT'S RIGHT TO CARRY OUT THE WORK

2.4.1 If Contractor fails to carry out the Work in accordance with the Contract Documents, fails to provide sufficient labor, materials, equipment, tools, and services to maintain the Contract Schedule, or otherwise fails to comply with any material term of the Contract Documents, and, after receipt of written notice from District, fails within 2 days, excluding Saturdays, Sundays and legal holidays, or within such additional time as the District may specify, to correct such failure, District may, without prejudice to other remedies District may have, correct such failure at Contractor's expense. In such case, District will be entitled to deduct from payments then or thereafter due Contractor the cost of correcting such failure, including without limitation compensation for the additional services and expenses of District's consultants made necessary thereby. If payments then or thereafter due Contractor are not sufficient to cover such amounts, Contractor shall pay the additional amount to District.

2.5 DISTRICT'S RIGHT TO REPLACE DISTRICT'S REPRESENTATIVE

2.5.1 District may at any time and from time to time, without prior notice to or approval of Contractor, replace District's Representative with a new District's Representative. Upon receipt of notice from District informing Contractor of such replacement and identifying the new District's representative, Contractor shall recognize such person or firm as District's Representative for all purposes under the Contract Documents.

END OF ARTICLE 2

ARTICLE 3

CONTRACTOR

3.1 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

3.1.1 Contractor and its Subcontractors shall review and compare each of the Contract Documents with the others and with information furnished or made available by District, and shall promptly report in writing to District's Representative any errors, inconsistencies, or omissions in the Contract Documents or inconsistencies with Applicable Code Requirements observed by Contractor or its Subcontractors.

3.1.2 Contractor and its Subcontractors shall take field measurements, verify field conditions, and carefully compare with the Contract Documents such field measurements, conditions, and other information known to Contractor before commencing the Work. Errors, inconsistencies, or omissions discovered at any time shall be promptly reported in writing to District's Representative.

3.1.3 If Contractor and its Subcontractors performs any construction activity involving an error, inconsistency, or omission referred to in Articles 3.1.1 and 3.1.2, without giving the notice required in those Articles and obtaining the written consent of District's Representative, Contractor shall be responsible for the resultant losses, including, without limitation, the costs of correcting Defective Work.

3.2 SUPERVISION AND CONSTRUCTION PROCEDURES

3.2.1 Contractor shall supervise, coordinate, and direct the Work using Contractor's best skill and attention. Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, procedures, and the coordination of all portions of the Work.

3.2.2 Contractor shall be responsible to District for acts and omissions of Contractor's agents, employees, and Subcontractors, and their respective agents and employees.

3.2.3 Contractor shall not be relieved of its obligation to perform the Work in accordance with the Contract Documents either by acts or omissions of District or District's Representative in the administration of the Contract, or by tests, inspections, or approvals required or performed by persons or firms other than Contractor.

3.2.4 Contractor shall be responsible for inspection of all portions of the Work, including those portions already performed under this Contract, to determine that such portions conform to the requirements of the Contract Documents and are ready to receive subsequent Work.

3.2.5 Contractor shall at all times maintain good discipline and order among its employees and Subcontractors. Contractor shall provide competent, fully qualified personnel to perform the Work. If the performance of any of the personnel is unsatisfactory, the District has the right to request changes at no additional cost to the District. The new proposed personnel must be approved by the District.

3.2.6 Contractor shall familiarize itself with and adhere to the requirements, procedures, and responsibilities delineated in the California Division of the State Architect's (DSA's) Project Certification Guide.

3.3 LABOR AND MATERIALS

3.3.1 Unless otherwise provided in the Contract Documents, Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and Final Completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

3.4 CONTRACTOR'S WARRANTY

3.4.1 Contractor warrants to District that all materials and equipment used in or incorporated into the Work will be of good quality, new, and free of liens, claims, and security interests of third parties; that the Work will be of good quality and free from defects; and that the Work will conform with the requirements of the Contract Documents. If required by District's Representative, Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

3.5 TAXES

3.5.1 Contractor shall pay all sales, consumer, use, and similar taxes for the Work or portions thereof provided by Contractor.

3.6 PERMITS, FEES, AND NOTICES

3.6.1 Except for the permits and approvals which are to be obtained by District or the requirements with respect to which District is not subject as provided in Article 2.1.2, Contractor shall secure and pay for all permits, approvals, government fees, licenses, and inspections necessary for the proper execution and performance of the Work. Contractor shall deliver to District all original licenses, permits, and approvals obtained by Contractor in connection with the Work prior to the final payment or upon termination of the Contract, whichever is earlier.

3.7 APPLICABLE CODE REQUIREMENTS

3.7.1 Contractor shall perform the Work in accordance with the following Applicable Code Requirements:

- .1 All laws, statutes, the most recent building codes, ordinances, rules, regulations, and lawful orders of all public authorities having jurisdiction over District, Contractor, any Subcontractor, the Project, the Project site, the Work, or the prosecution of the Work.
- .2 All requirements of any insurance company issuing insurance required hereunder.
- .3 The Federal Occupational Safety and Health Act and all other Applicable Code Requirements relating to safety.
- .4 Applicable titles in the State of California Code of Regulations.
- .5 Applicable sections in the State of California Labor Code.
- .6 All Applicable Code Requirements relating to nondiscrimination, payment of prevailing wages, payroll records, apprentices, and work day.

Without limiting the foregoing, Contractor shall comply with the provisions regarding nondiscrimination, payment of prevailing wages, payroll records, apprentices, and work day set forth in Article 14.

3.7.2 Contractor shall comply with and give notices required by all Applicable Code Requirements, including all environmental laws and all notice requirements under the State of California Safe Drinking Water and Enforcement Act of 1986 (State of California Health and Safety Code Section 25249.5 and applicable sections that follow). Contractor shall promptly notify District's Representative in writing if Contractor becomes aware during the performance of the Work that the Contract Documents are at variance with Applicable Code Requirements.

3.7.3 If Contractor performs Work which it knows or should know is contrary to Applicable Code Requirements, without prior notice to District and District's Representative, Contractor shall be responsible for such Work and any resulting damages including, without limitation, the costs of correcting Defective Work.

3.8 SUPERINTENDENT

3.8.1 Contractor shall employ a competent Superintendent satisfactory to District who shall be in attendance at the Project site at all times during the performance of the Work. Superintendent shall represent Contractor and communications given to and received from Superintendent shall be binding on Contractor.

3.8.2 Failure to maintain a Superintendent on the Project site at all times Work is in progress shall be considered a material breach of this Contract, entitling District to terminate the Contract or alternatively, issue a stop Work order until the Superintendent is on the Project site. If, by virtue of issuance of said stop Work order, Contractor fails to complete the Contract on time, Contractor will be assessed Liquidated Damages in accordance with the Agreement.

3.8.3 The Superintendent approved for the Project must be able to read, write and verbally communicate in English.

3.8.4 The Superintendent may not perform the Work of any trade, pick-up materials, or perform any Work not directly related to the supervision and coordination of the Work at the Project site when Work is in progress.

3.9 SCHEDULES REQUIRED OF CONTRACTOR

3.9.1 Contractor shall submit a Preliminary Contract Schedule to District's Representative in the form and within the time limit required by the Specifications. District's Representative will review the Preliminary Contract Schedule with Contractor within the time limit required by the Specifications, or, if no such time period is specified, within a reasonable period of time.

3.9.2 Contractor shall submit a Contract Schedule and updated Contract Schedules to District's Representative in the form and within the time limits required by the Specifications and acceptable to District's Representative. District's Representative will determine acceptability of the Contract Schedule and updated Contract Schedules within the time limits required by the Specifications, or if no such time period is specified, within a reasonable period of time. If District's Representative deems the Contract Schedule or updated Contract Schedule unacceptable, it shall specify in writing to Contractor the basis for its objection.

3.9.3 The Preliminary Contract Schedule, the Contract Schedule, and updated Contract Schedules shall represent a practical plan to complete the Work within the Contract Time. Schedules showing the Work completed in less than the Contract Time may be acceptable if judged by District's Representative to be practical. Schedules showing the Work completed beyond the Contract Time may be submitted under the following circumstances:

- .1 If accompanied by a Change Order Request seeking an adjustment of the Contract Time consistent the requirements of paragraph 8.4 for Adjustment of the Contract Time for Delay; or
- .2 If the Contract Time has passed, or if it is a practical impossibility to complete the Work within the Contract Time, then the updated Contract Schedule or Fragnet Schedule shall show completion at the earliest practical date.

District's Representative will timely review the updated Contract Schedule or Fragnet Schedule submitted by Contractor. If District's Representative determines that additional supporting data are necessary to fully evaluate the updated Contract Schedule or Fragnet Schedule, District's Representative will request such additional supporting data in writing. Such data shall be furnished no later than 10 days after the date of such request. District's Representative will render a decision promptly and in any case within 30 days after the later of the receipt of the updated Contract Schedule or Fragnet Schedule or the deadline for furnishing such additional supporting data. Failure of District's Representative to render a decision by the applicable deadline will be deemed a decision denying approval of the updated Contract Schedule or Fragnet Schedule.

Acceptance of any schedule showing completion beyond the Contract Time by District's Representative shall not change the Contract Time and is without prejudice to any right of the District. The Contract Time, not the Contract Schedule, shall control in the determination of liquidated damages payable by Contractor under Article 4 and Article 5 of the Agreement and in the determination of any delay under Article 8 of the General Conditions.

3.9.4 If a schedule showing the Work completed in less than the Contract Time is accepted, Contractor shall not be entitled to extensions of the Contract Time for Excusable Delays or Compensable Delays or to adjustments of the Contract Sum for Compensable Delays until such delays extend the Final Completion of the Work beyond the expiration of the Contract Time.

3.9.5 Contractor shall prepare and keep current, to the reasonable satisfaction of District's Representative, a Submittal Schedule, in the form contained in the Exhibits, for each submittal, as required by the Specifications, and that are coordinated with the other activities in the Contract Schedule.

3.9.6 The Preliminary Contract Schedule, Contract Schedule, and the Updated Contract Schedules shall meet the following requirements:

- .1 Schedules must be suitable for monitoring progress of the Work.
- .2 Schedules must provide necessary data about the timing for District decisions and District-furnished items.
- .3 Schedules must be in sufficient detail to demonstrate adequate planning for the Work.
- .4 Schedules must represent a practical plan to perform and complete the Work within the Contract Time.

3.9.7 District's Representative's review of the form and general content of the Preliminary Contract Schedule, Contract Schedule, and Updated Contract Schedules is for the purpose of determining if the above-listed requirements have been satisfied.

3.9.8 Contractor shall plan, develop, supervise, control, and coordinate the performance of the Work so that its progress and the sequence and timing of Work will permit its completion within the Contract Time, any Contract milestones and any Contract phases.

3.9.9 In preparing the Preliminary Contract Schedule, the Contract Schedule, and updated Contract Schedules, Contractor shall obtain such information and data from Subcontractors as may be required to develop a reasonable and appropriate schedule for performance of the work and shall provide such information and data to the District's Representative upon request.

Contractor shall continuously obtain from Subcontractors information and data about the planning for and progress of the Work and the delivery of equipment, shall coordinate and integrate such information and data into updated Contract Schedules, as appropriate, and shall monitor the progress of the Work and the delivery of equipment.

3.9.10 Contractor shall act as the expeditor of potential and actual delays, interruptions, hindrances, or disruptions for its own forces and those forces of Subcontractors, regardless of tier.

3.9.11 Contractor shall cooperate with District's Representative in the development of the Contract Schedule and updated Contract Schedules. District's Representative's acceptance of or its review comments about any schedule or scheduling data shall not relieve Contractor from its sole responsibility to plan for, perform, and complete the Work within the Contract Time. Acceptance of or review comments about any schedule shall not transfer responsibility for any schedule to District's Representative or District nor imply their agreement with (1) any assumption upon which such schedule is based or (2) any matter underlying or contained in such schedule. Failure of District's Representative to discover errors or omissions in schedules that it has reviewed, or to inform Contractor that Contractor, Subcontractors, or others are behind schedule, or to direct or enforce procedures for complying with the Contract Schedule shall not relieve Contractor from its sole responsibility to perform and complete the Work within the Contract Time and shall not be a cause for an adjustment of the Contract Time or the Contract Sum.

3.10 AS-BUILT DOCUMENTS

3.10.1 Contractor shall maintain one set of As-built drawings and specifications, which shall be kept up to date during the Work of the Contract. All changes which are incorporated into the Work which differ from the documents as drawn and written shall be noted on the As-built set. Notations shall reflect the actual materials, equipment and installation methods used for the Work and each revision shall be initialed and dated by Superintendent. Prior to filing of the Notice of Completion each drawing and the specification cover shall be signed by Contractor and dated attesting to the completeness of the information noted therein. As-built Documents shall be turned over to the District's Representative and shall become part of the Record Documents.

3.11 DOCUMENTS AND SAMPLES AT PROJECT SITE

3.11.1 Contractor shall maintain the following at the Project site:

- .1 One as-built copy of the Contract Documents, in good order and marked to record current changes and selections made during construction.
- .2 The current accepted Contract Schedule.
- .3 Shop Drawings, Product Data, and Samples.
- .4 All other required submittals.

These shall be available to District's Representative and shall be delivered to District's Representative for submittal to District upon the earlier of Final Completion or termination of the Contract.

3.12 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

3.12.1 Definitions:

- .1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by Contractor or a Subcontractor to illustrate some portion of the Work.
- .2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by Contractor to illustrate or describe materials or equipment for some portion of the Work.
- .3 Samples are physical examples which illustrate materials, equipment, or workmanship and establish standards by which the Work will be judged.

3.12.2 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate, for those portions of the Work for which submittals are required, how Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents.

3.12.3 Contractor shall review, approve, and submit to District's Representative Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of District or of Separate Contractors. Submittals made by Contractor which are not required by the Contract Documents may be returned without action by District's Representative.

3.12.4 Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples, or similar submittals until the respective submittal has been reviewed by District's Representative and no exceptions have been taken by District's Representative. Such Work shall be in accordance with approved submittals and the Contract Documents.

3.12.5 By approving and submitting Shop Drawings, Product Data, Samples, and similar submittals, Contractor represents that it has determined or verified materials and field measurements and conditions related thereto, and that it has checked and coordinated the information contained

within such submittals with the requirements of the Contract Documents and Shop Drawings for related Work.

3.12.6 If Contractor discovers any conflicts, omissions, or errors in Shop Drawings or other submittals, Contractor shall notify District's Representative and receive instruction before proceeding with the affected Work.

3.12.7 Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by District's Representative's review of Shop Drawings, Product Data, Samples, or similar submittals, unless Contractor has specifically informed District's Representative in writing of such deviation at the time of submittal and District's Representative has given written approval of the specific deviation. Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals by District's Representative's review, acceptance, comment, or approval thereof.

3.12.8 Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by District's Representative on previous submittals.

3.13 USE OF SITE AND CLEAN UP

3.13.1 Contractor shall confine operations at the Project site to areas permitted by law, ordinances, permits, and the Contract Documents. Contractor shall not unreasonably encumber the Project site with materials or equipment.

3.13.2 Contractor shall, during performance of the Work, keep the Project site and surrounding area free from the accumulation of excess dirt, waste materials, and rubbish caused by Contractor. Contractor shall remove all excess dirt, waste material, and rubbish caused by the Contractor; tools; equipment; machinery; and surplus materials from the Project site and surrounding area at the completion of the Work.

3.13.3 Personnel of Contractor and Subcontractors shall not occupy, live upon, or otherwise make use of the Project site during any time that Work is not being performed at the Project site, except as otherwise provided in the Contract Documents.

3.14 CUTTING, FITTING, AND PATCHING

3.14.1 Contractor shall do all cutting, fitting, or patching of the Work required to make all parts of the Work come together properly and to allow the Work to receive or be received by work of Separate Contractors shown upon, or reasonably implied by, the Contract Documents.

3.14.2 Contractor shall not endanger the Work, the Project, or adjacent property by cutting, digging, or otherwise. Contractor shall not cut or alter the work of any Separate Contractor without the prior consent of District's Representative.

3.15 ACCESS TO WORK

3.15.1 District, District's Representative, their consultants, and other persons authorized by District will at all times have access to the Work wherever it is in preparation or progress. Contractor shall provide safe and proper facilities for such access and for inspection.

3.16 ROYALTIES AND PATENTS

3.16.1 Contractor shall pay all royalties and license fees required for the performance of the Work. Contractor shall defend suits or claims resulting from Contractor's or any Subcontractor's infringement of patent rights and shall Indemnify, defend and hold harmless District and District's Representative from losses on account thereof.

3.17 DIFFERING SITE CONDITIONS

3.17.1 If Contractor encounters any of the following conditions at the site, Contractor shall immediately notify the District's Representative in writing of the specific differing conditions before they are disturbed and before any affected Work is performed, and permit investigation of the conditions:

- .1 Subsurface or latent physical conditions at the site (including Hazardous Materials) which differ materially from those indicated in this Contract, or if not indicated in this Contract, in the Information Available to Bidders;
or
- .2 Unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

3.17.2 Contractor shall be entitled to an adjustment to the Contract Sum and/or Contract Time as the result of extra costs and/or delays resulting from a materially differing site condition, if and only if Contractor fulfills the following conditions:

- .1 Contractor fully complies with Article 3.17.1; and
- .2 Contractor fully complies with Article 4 (including the timely filing of a Change Order Request and all other requirements for Change Orders Requests and Claims).

3.17.3 Adjustments to the Contract Sum and/or Contract Time shall be subject to the procedures and limitations set forth in Articles 7 and 8.

3.18 CONCEALED, UNFORESEEN, OR UNKNOWN CONDITIONS OR EVENTS

3.18.1 Except and only to the extent provided otherwise in Articles 3.17, 7 and 8 of the General Conditions, by signing the Agreement, Contractor agrees:

- .1 To bear the risk of concealed, unforeseen or unknown conditions and events, if any, which may be encountered in performing the Contract; and
- .2 That Contractor's bid for the Contract was made with full knowledge of this risk.

In agreeing to bear the risk of concealed, unforeseen or unknown conditions and events, Contractor understands that, except and only to the extent provided otherwise in Articles 3.17, 7 and 8, concealed, unforeseen or unknown conditions and events shall not excuse Contractor from its obligation to achieve Final Completion of the Work within the Contract Time, and shall not entitle the Contractor to an adjustment of the Contract Sum.

3.18.2 If Contractor encounters concealed, unforeseen or unknown conditions or events that may require a change to the design shown in the Contract Documents, Contractor shall immediately notify District's Representative in writing such that District's Representative can determine if a change to the design is required. Contractor shall be liable to District for any extra costs incurred as the result of Contractor's failure to immediately give such notice.

3.18.3 If, as the result of concealed, unforeseen or unknown conditions or events, the District issues a Change Order or Field Order that changes the design from the design depicted in the Contract Documents, Contractor shall be entitled, subject to compliance all the provisions of the Contract, including those set forth in Articles 4, 7 and 8, to an adjustment of the Contract Sum and/or Contract Time, for the cost and delay resulting from implementing the changes to the design. Except as provided in this Article 3.18.3, or as may be expressly provided otherwise in the Contract, there shall be no adjustment of the Contract Sum and/or Contract Time as a result of concealed, unforeseen or unknown conditions or events.

3.18.4 Contractor shall, as a condition precedent to any adjustment in Contract Sum or Contract Time under Article 3.18.3, fully comply with Article 4 (including the timely filing of a Change Order Request and all other requirements for Change Orders Requests and Claims).

3.19 HAZARDOUS MATERIALS

3.19.1 The District shall not be responsible for any Hazardous Material brought to the site by the Contractor.

3.19.2 If the Contractor: (i) introduces and/or discharges a Hazardous Material onto the site in a manner not specified by the Contract Documents; and/or (ii) disturbs a Hazardous Material identified in the Contract Documents, the Contractor shall hire a qualified remediation contractor at Contractor's sole cost to eliminate the condition as soon as possible. Under no circumstance shall the Contractor perform Work for which it is not qualified. District, in its sole discretion, may require the Contractor to retain at Contractor's cost an independent testing laboratory.

3.19.3 If the Contractor encounters a Hazardous Material which may cause foreseeable injury or damage, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such material or substance (except in an emergency situation); and (iii) notify District (and promptly thereafter confirm such notice in writing).

3.19.4 Subject to Contractor's compliance with Article 3.19.3, the District shall verify the presence or absence of the Hazardous Material reported by the Contractor, except as qualified under Section 3.19.1 and 3.19.3, and, in the event such material or substance is found to be present, verify that the levels of the hazardous material are below OSHA Permissible Exposure Levels and below levels which would classify the material as a state of California or federal hazardous waste. When the material falls below such levels, Work in the affected area shall resume upon direction by the District. The Contract Time and Sum shall be extended appropriately as provided in Articles 7 and 8.

3.19.5 The District shall indemnify and hold harmless the Contractor from and against claims, damages, losses and expenses, arising from a Hazardous Material on the Project site, if such Hazardous Material: (i) was not shown on the Contract Documents or Information Available to Bidders; (ii) was not brought to the site by Contractor; and (iii) exceeded OSHA Permissible Exposure Levels or levels which would classify the material as a state of California or federal hazardous waste. The indemnity obligation in this Article shall not apply to:

- .1 claims, damages, losses or expenses arising from the breach of contract, negligence or willful misconduct of Contractor, its suppliers, its Subcontractors of all tiers and/or any persons or entities working under Contractor; and
- .2 claims, damages, losses or expenses arising from a Hazardous Material subject to Article 3.19.2.

3.19.6 In addition to the requirements in Article 3.22, Contractor shall indemnify and hold harmless the District from and against claims, damages, losses and expenses, arising from a Hazardous Material on the Project site, if such Hazardous Material: (i) was shown on the Contract Documents or Information Available to Bidders; (ii) was brought to the site by Contractor; and (iii) exceeded OSHA Permissible Exposure Levels or levels which would classify the material as a state of California or federal hazardous waste. Nothing in this paragraph shall obligate the Contractor to indemnify District in the event of the sole negligence of the District, its officers, agents, or employees.

3.20 INFORMATION AVAILABLE TO BIDDERS

3.20.1 Any information provided pursuant to INFORMATION AVAILABLE TO BIDDERS is subject to the following provisions:

- .1 The information is made available for the convenience of Bidders and is not a part of the Contract.
- .2 The Contractor may rely on written descriptions of physical conditions included in the information to the extent such reliance is reasonable.
- .3 Other components of the information, including but not limited to recommendations, may not be relied upon by Contractor. District shall not be responsible for any interpretation of or conclusion drawn from the other components of the information by the Contractor.

3.21 LIABILITY FOR AND REPAIR OF DAMAGED WORK

3.21.1 Contractor shall be liable for any and all damages and losses to the Project (whether by fire, theft, vandalism, earthquake, flood or otherwise) prior to District's

acceptance of the Project as fully completed except that Contractor shall not be liable for damages and losses to the Project caused by earthquake in excess of magnitude 3.5 on the Richter Scale, tidal wave, or flood, provided that the damages or losses were not caused in whole or in part by the negligent acts or omissions of Contractor, its officers, agents or employees (including all Subcontractors and suppliers of all tiers). As used herein, "flood" shall have the same meaning as in the builder's risk property insurance.

3.21.2 Contractor shall promptly repair and replace any Work or materials damaged or destroyed for which the Contractor is liable under Article 3.21.1.

3.22 INDEMNIFICATION

3.22.1 Contractor shall indemnify, defend and hold harmless District, District's consultants, District's Representative, District's Representative's consultants, and their respective directors, officers, agents, and employees from and against losses (including without limitation the cost of repairing defective work and remedying the consequences of defective work) arising out of, resulting from, or relating to the following:

- .1 The failure of Contractor to perform its obligations under the Contract.
- .2 The inaccuracy of any representation or warranty by Contractor given in accordance with or contained in the Contract Documents.
- .3 Any claim of damage or loss by any Subcontractor against District arising out of any alleged act or omission of Contractor or any other Subcontractor, or anyone directly or indirectly employed by Contractor or any Subcontractor.
- .4 Any claim of damage or loss resulting from Hazardous Materials introduced, discharged, or disturbed by Contractor as required per Article 3.19.6.

3.22.2 The District shall not be liable or responsible for any accidents, loss, injury (including death) or damages happening or accruing during the term of the performance of the Work herein referred to or in connection therewith, to persons and/or property, and Contractor shall fully indemnify, defend and hold harmless District and protect District from and against the same as provided in paragraph 3.22.1 above. In addition to the liability imposed by law upon the Contractor for damage or injury (including death) to persons or property by reason of the negligence of the Contractor, its officers, agents, employees or Subcontractors, which liability is not impaired or otherwise affected hereby, the Contractor shall defend, indemnify, hold harmless, release and forever discharge the District, its officers, employees, and agents from and against and waive any and all responsibility of same for every expense, liability, or payment by reason of any damage or injury (including death) to persons or property suffered or claimed to have been suffered through any negligent act, omission, or willful misconduct of the Contractor, its officers, agents, employees, or any of its Subcontractors, or anyone directly or indirectly employed by either of them or from the condition of the premises or any part of the premises while in control of the Contractor, its officers, agents, employees, or any of its Subcontractors or anyone directly or indirectly employed by either of them, arising out of the performance of the Work called for by this Contract. Contractor agrees that this indemnity and hold harmless shall apply even in the event of negligence of District, its officers, agents, or employees, regardless of whether such negligence is contributory to any claim, demand, loss, damage, injury, expense, and/or liability; but such indemnity and hold harmless shall

not apply (i) in the event of the sole negligence of District, its officers, agents, or employees; or (ii) to the extent that the District shall indemnify and hold harmless the Contractor for Hazardous Materials pursuant to Article 3.19.5.

3.22.3 In claims against any person or entity indemnified under this Article 3.22 that are made by an employee of Contractor or any Subcontractor, a person indirectly employed by Contractor or any Subcontractor, or anyone for whose acts Contractor or any Subcontractor may be liable, the indemnification obligation under this Article 3.22 shall not be limited by any limitation on amount or type of damages, compensation, or benefits payable by or for Contractor or any Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

3.22.4 The indemnification obligations under this Article 3.22 shall not be limited by any assertion or finding that the person or entity indemnified is liable by reason of a non-delegable duty.

3.22.5 Contractor shall Indemnify District from and against Losses resulting from any claim of damage made by any Separate Contractor against District arising out of any alleged acts or omissions of Contractor, any Subcontractor, anyone directly or indirectly employed by either of them, or anyone for whose acts either of them may be liable.

3.22.6 Contractor shall Indemnify Separate Contractors from and against Losses arising out of the negligent acts, omissions, or willful misconduct of Contractor, any Subcontractor, anyone directly or indirectly employed by either of them, or anyone for whose acts either of them may be liable.

END OF ARTICLE 3

ARTICLE 4

ADMINISTRATION OF THE CONTRACT

4.1 ADMINISTRATION OF THE CONTRACT BY DISTRICT'S REPRESENTATIVE

4.1.1 District's Representative will provide administration of the Contract as provided in the Contract Documents and will be the representative of District. District's Representative will have authority to act on behalf of District only to the extent provided in the Contract Documents.

4.1.2 District's Representative will have the right to visit the Project site at such intervals as deemed appropriate by the District's Representative. However, no actions taken during such Project site visit by District's Representative shall relieve Contractor of its obligations as described in the Contract Documents.

4.1.3 District's Representative will not have control over, will not be in charge of, and will not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, since these are solely Contractor's responsibility.

4.1.4 Except as otherwise provided in the Contract Documents or when direct communications have been specifically authorized, District and Contractor shall communicate through District's Representative. Except when direct communication has been specifically authorized in writing by District Representative, communications by Contractor with District's consultants and District's Representative's consultants shall be through District's Representative. Communications by District and District's Representative with Subcontractors will be through Contractor. Communications by Contractor and Subcontractors with Separate Contractors shall be through District's Representative. Contractor shall not rely on oral or other non-written communications.

4.1.5 Based on District's Representative's Project site visits and evaluations of Contractor's Applications For Payment, District's Representative will recommend amounts, if any, due Contractor and will issue Certificates For Payment in such amounts.

4.1.6 District's Representative will have the authority to reject the Work, or any portion thereof, which does not conform to the Contract Documents. District's Representative will have the authority to stop the Work or any portion thereof. Whenever District's Representative considers it necessary or advisable for implementation of the intent of the Contract Documents, District's Representative will have the authority to require additional inspection or testing of the Work in accordance with the Contract Documents, whether or not such Work is fabricated, installed, or completed. However, no authority of District's Representative conferred by the Contract Documents nor any decision made in good faith either to exercise or not exercise such authority, will give rise to a duty or responsibility of District or District's Representative to Contractor, or any person or entity claiming under or through Contractor.

4.1.7 District's Representative will have the authority to conduct inspections as provided in the Contract Documents, to take Beneficial Occupancy and to determine the dates of Substantial Completion and Final Completion; will receive for review and approval any records, written warranties, and related documents required by the Contract Documents and assembled by Contractor; and will issue a final

Certificate For Payment upon Contractor's compliance with the requirements of the Contract Documents.

4.1.8 District's Representative will be, in the first instance, the interpreter of the requirements of the Contract Documents and the judge of performance thereunder by Contractor. Should Contractor discover any conflicts, omissions, or errors in the Contract Documents; have any questions about the interpretation or clarification of the Contract Documents; question whether Work is within the scope of the Contract Documents; or question that Work required is not sufficiently detailed or explained, then, before proceeding with the Work affected, Contractor shall notify District's Representative in writing and request interpretation, clarification, or furnishing of additional detailed instructions. District's Representative's response to questions and requests for interpretations, clarifications, instructions, or decisions will be made with reasonable promptness. Should Contractor proceed with the Work affected before receipt of a response from District's Representative, any portion of the Work which is not done in accordance with District's Representative's interpretations, clarifications, instructions, or decisions shall be removed or replaced and Contractor shall be responsible for all resultant losses.

4.2 CONTRACTOR CHANGE ORDER REQUESTS

4.2.1 Contractor may request changes to the Contract Sum and/or Contract Time for Extra Work, materially differing site conditions, or Delays to Final Completion of the Work.

4.2.2 Conditions precedent to obtaining an adjustment of the Contract Sum and/or Contract Time, payment of money, or other relief with respect to the Contract Documents, for any other reason, are:

- .1 Timely submission of a Change Order Request that meets the requirements of Articles 4.2.3.1 and 4.2.3.2; and
- .2 If requested, timely submission of additional informational requested by the District Representative pursuant to Article 4.2.3.3.

4.2.3 Change Order Request:

4.2.3.1 A Change Order Request will be deemed timely submitted if, and only if, it is submitted within 7 days of the date the Contractor discovers, or reasonably should discover the circumstances giving rise to the Change Order Request, unless additional time is allowed in writing by District's Representative for submission of the Change Order Request, provided that if :

- .1 the Change Order Request includes compensation sought by a Subcontractor;
AND
- .2 the Contractor requests in writing to the District's Representative, within the 7-day time period, additional time to permit Contractor to conduct an appropriate review of the Subcontractor Change Order Request,

the time period for submission of the actual Change Order Request shall be extended by the number of days specified in writing by the District's Representative.

4.2.3.2 A Change Order Request must state that it is a Change Order Request, state and justify the reason for the request, and specify the amount of any requested adjustment of the

Contract Sum, Contract Time, and/or other monetary relief. If the Contractor requests an adjustment to the Contract Sum or other monetary relief, the Contractor shall submit the following with the Change Order Request:

- .1 a completed Cost Proposal in the form contained in the Exhibits meeting the requirements of Article 7; OR
- .2 a partial Cost Proposal and a declaration of what required information is not then known to Contractor. If Contractor failed to submit a completed Cost Proposal with the Change Order Request, Contractor shall submit a completed Cost Proposal meeting the requirements of Article 7 within 7 days of the date the Contractor submitted the Change Order Request unless additional time is allowed by the District's Representative.

4.2.3.3 Upon request of District's Representative, Contractor shall submit such additional information as may be requested by District's Representative for the purpose of evaluating the Change Order Request. Such additional information may include:

- .1 If Contractor seeks an adjustment of the Contract Sum or other monetary relief, actual cost records for any changed or extra costs (including without limitation, payroll records, material and rental invoices and the like), shall be submitted by the deadline established by the District's Representative, who may require such actual cost records to be submitted and reviewed, on a daily basis, by the District's Representative and/or representatives of the District's Representative.
- .2 If Contractor seeks an adjustment of the Contract Time, written documentation demonstrating Contractor's entitlement to a time extension under Article 8.4, which shall be submitted within 15 days of the date requested. If requested, Contractor may submit a fragnet in support of its request for a time extension. The District may, but is not obligated to, grant a time extension on the basis of a fragnet alone which, by its nature, is not a complete schedule analysis. If deemed appropriate by District's Representative, Contractor shall submit a more detailed schedule analysis in support of its request for a time extension.
- .3 If Contractor seeks an adjustment of the Contract Sum or other monetary relief for delay, written documentation demonstrating Contractor's entitlement to such an adjustment under Article 7.3.9, which shall be submitted within 15 days of the date requested.
- .4 Any other information requested by the District's Representative for the purpose of evaluating the Change Order Request, which shall be submitted by the deadline established by the District's Representative.

4.2.4 District's Representative will make a decision on a Change Order Request, within a reasonable time, after receipt of a Change Order Request. In the event the Change Order Request is submitted pursuant to Article 8.4.1, the District's Representative shall promptly review and accept or reject it within thirty (30) days. A final decision is any decision on a Change Order Request which states that it is final. If District's Representative issues a final decision denying a Change Order Request in whole or in part, Contractor may contest the decision by filing a timely Claim under the

procedures specified in Article 4.3.

4.2.5 Contractor may file a written demand for a final decision by District's Representative on all or part of any Change Order Request as to which the District's Representative has not previously issued a final decision pursuant to Article 4.2.4; such written demand may not be made earlier than the 30th day after submission of the Change Order Request. Within 30 days of receipt of the demand, District's Representative will issue a final decision on the Change Order Request. The District's Representative's failure to issue a decision within the 30-day period shall be treated as the issuance, on the last day of the 30-day period, of a final decision to deny the Change Order Request in its entirety.

4.3 CLAIMS

4.3.1 The term "Claim" means a written demand or assertion by Contractor seeking an adjustment or interpretation of the terms of the Contract Documents, payment of money, extension of time, or other relief with respect to the Contract Documents, including a determination of disputes or matters in question between District and Contractor arising out of or related to the Contract Documents or the performance of the Work. However, the term "Claim" shall not include, and the Claims procedures provided under this Article 4, including but not limited to arbitration, shall not apply to the following:

- .1 Claims respecting penalties for forfeitures prescribed by statute or regulation which a government agency is specifically authorized to administer, settle, or determine.
- .2 Claims respecting personal injury, death, reimbursement, or other compensation arising out of or resulting from liability for personal injury or death.
- .3 Claims by District, except as set forth in article 4.7.4.
- .4 Claims respecting stop notices.

4.3.2 A Claim arises upon the issuance of a written final decision denying in whole or in part Contractor's Change Order Request pursuant to Article 4.2.4.

4.3.3 A Claim must include the following:

- .1 A statement that it is a Claim and a request for a decision pursuant to Article 4.5.
- .2 A detailed factual narrative of events fully describing the nature and circumstances giving rise to the Claim, including but not limited to, necessary dates, locations, and items of work affected.
- .3 A certification, executed by Contractor, that the claim is filed in good faith. The certification must be made on the Claim Certification form, included in the Exhibits to the Contract. The language of the Claim Certification form may not be modified.
- .4 A certification, executed by each Subcontractor claiming not less than 5% of the total monetary amount sought by the claim, that the subcontractor's portion of the claim is filed in good faith. The certification must be made on the Claim Certification form, included in the Exhibits to the Contract. The language of the Claim Certification form may not be modified.
- .5 A statement demonstrating that a Change Order Request was timely submitted as required by Article 4.2.3

- .6 If a Cost Proposal or declaration was required by Article 4.2.3, a statement demonstrating that the Cost Proposal or the declaration was timely submitted as required by Article 4.2.3.
- .7 A detailed justification for any remedy or relief sought by the Claim, including to the extent applicable, the following:
 - .1 If the Claim involves Extra Work, a detailed cost breakdown of the amounts claimed, including the items specified in Article 7.3.2. An estimate of the costs must be provided even if the costs claimed have not been incurred when the Claim is submitted. To the extent costs have been incurred when the Claim is submitted, the Claim must include actual cost records (including without limitation, payroll records, material and rental invoices and the like) demonstrating that costs claimed have actually been incurred. To the extent costs have not yet been incurred at the time the Claim is submitted, actual cost records must be submitted on a current basis not less than once a month during any periods costs are incurred. A cost record will be considered current if submitted within 30 days of the date the cost reflected in the record is incurred. At the request of the District's Representative, claimed extra costs may be subject to further verification procedures (such as having an inspector verify the performance of alleged Extra Work on a daily basis). The cost breakdown must include an itemization of costs for i) labor including names, classifications, regular hours and overtime hours worked, dates worked, and other pertinent information; ii) materials stored or incorporated in the work including invoices, purchase orders, location of materials either stored or incorporated into the work, dates materials were transported to the project or incorporated into the work, and other pertinent information; and iii) itemization of machinery and equipment including make, model, hours of use, dates of use and equipment rental rates of any rented equipment.
 - .2 If the Claim involves an extension of the Contract Time, written documentation demonstrating the Contractor's entitlement to a time extension under Article 8.4, including the specific dates for which a time extension is sought and the specific reasons for entitlement of a time extension.
 - .3 If the Claim involves an adjustment of the Contract Sum for delay, written documentation demonstrating the Contractor's entitlement to such an adjustment under Article 7.3.9, including but not limited to, a detailed time impact analysis of the Contract Schedule. The Contract Schedule must demonstrate Contractor's entitlement to such an adjustment under Article 7.3.9.

4.4 ASSERTION OF CLAIMS

4.4.1 Claims by Contractor shall be first submitted to District's Representative for decision.

4.4.2 Notwithstanding the making of any Claim or the existence of any dispute regarding any Claim, unless otherwise directed by District's Representative, Contractor shall not cause any delay, cessation, or termination in or of Contractor's performance of the Work, but shall diligently proceed with performance of the Work in accordance with the Contract Documents.

4.4.3 Contractor shall submit a Claim in writing, together with all supporting data specified in Article 4.3.3, to District's Representative as soon as possible but not later than 30 days after the date the

Claim arises under Article 4.3.2, provided that after written notification to the District's Representative within such time period, the time period for submission of the Claim shall be extended by the number of days specified in writing by the District's Representative where the Claim includes compensation sought by a Subcontractor and the Contractor requests an extension of time to permit it to discharge its responsibilities to conduct an appropriate review of the Subcontractor claim.

4.4.4 Strict compliance with the requirements of Articles 4.2, 4.3 and 4.4 are conditions precedent to Contractor's right to arbitrate or litigate a Claim. Contractor specifically agrees to assert no Claims in arbitration or litigation unless there has been strict compliance with Articles 4.2, 4.3, and 4.4. The failure of Contractor to strictly comply with the requirements of Articles 4.2, 4.3 and 4.4 constitutes a failure by Contractor to exhaust its administrative remedies with the District, thereby denying any court or arbitration panel of jurisdiction to adjudicate the Claim.

4.5 DECISION OF DISTRICT'S REPRESENTATIVE ON CLAIMS

4.5.1 District's Representative will timely review Claims submitted by Contractor. If District's Representative determines that additional supporting data are necessary to fully evaluate a Claim, District's Representative will request such additional supporting data in writing. Such data shall be furnished no later than 10 days after the date of such request. District's Representative will render a decision promptly and in any case within 30 days after the later of the receipt of the Claim or the deadline for furnishing such additional supporting data; provided that, if the amount of the Claim is in excess of \$50,000, the aforesaid 30-day period shall be 60 days. Failure of District's Representative to render a decision by the applicable deadline will be deemed a decision denying the Claim on the date of the deadline. The decision of District's Representative will be final and binding unless appealed in accordance with Articles 4.5.2, 4.5.3, and 4.5.4.

The District's Representative's decision on a Claim or dispute will include a statement substantially as follows:

“This is a decision under Article 4.5 of the General Conditions of your contract. If you are dissatisfied with the decision, and if you complied with the procedural requirements for asserting claims specified in Article 4 of the General Conditions of your contract, you may have the right to arbitrate or litigate this decision. If you fail to take appropriate action with 30 days of the date of this decision, the decision shall become final and binding and not subject to further appeal.”

4.5.2 If either Contractor or District disputes District's Representative's decision on a Claim, such party (the “Disputing Party”) must either provide a written notice of its election to arbitrate or provide written notice of its election to litigate the Claim within 30 days after the decision of District's Representative or, if no decision has been issued, within 30 days from the date of the applicable deadline in Article 4.5.1 for District Representative to render a decision.

4.5.3 If a notice of election to arbitrate or litigate is not given by either party within 30 days after the decision of District's Representative, District's Representative's decision on the Claim will be final and binding and not subject to appeal or challenge.

4.5.4 If the Disputing Party gives timely notice of its election to arbitrate the District's Representative's decision on a Claim, Disputing Party shall have the right, within 120 days after a Notice of Completion,

or a Notice of Cessation, as applicable, is filed for the Contract, to make a demand for arbitration in accordance with Article 4.7. Failure to perfect a Claim for which a timely election to arbitrate has been made by the timely filing of a demand for arbitration and timely payment of all applicable and required fees to AAA shall result in the District's Representative's decision on said Claim becoming final and binding and not subject to appeal or challenge. If the Disputing Party makes a timely demand for arbitration, and the amount of the Claim in question, when combined with all other Claims, if any, which are the subject of previously filed demands for arbitration that have not been resolved by settlement or arbitration award, is \$100,000 or more, then the other party may elect to litigate all such Claims by filing a written notice with the American Arbitration Association ("AAA") within 30 days after its receipt of notice from AAA of the Disputing Party's demand for arbitration of the Claim that raises the total amount of Claims subject to arbitration to \$100,000 or more. If the other party fails to give notice of its election to litigate within such 30-day period, it shall be deemed to have consented to arbitration and waived the right to litigate. If after commencement of arbitration the amount of unresolved Claims in arbitration are allowed to be increased to \$100,000 or more, through an AAA-allowed amendment or otherwise, either party may elect to litigate within 30 days following the date that the electing party first receives written notification from AAA that total Claims in arbitration equal or exceed \$100,000. If neither party gives notice of its election to litigate within such 30-day period as applicable, then both parties shall be deemed to have consented to arbitration and waived the right to litigate.

4.5.5 Any litigation shall be filed in the Superior Court of the State of California for the County in which the contract was to be performed.

4.5.6 The parties will attempt in good faith to resolve any controversy or Claim arising out of or relating to this Contract by negotiation.

4.6 MEDIATION

4.6.1 The parties may agree to mediate any controversy or Claim arising out of or relating to this Contract.

4.7 ARBITRATION

4.7.1 A demand for arbitration pursuant to Article 4.5 shall include a copy of the Claim presented to District's Representative pursuant to Article 4.4 and a copy of the decision of District's Representative pursuant to Article 4.5, if any. The demand shall state the amount in controversy, if any, and state the remedy sought. The demand shall identify the District's Responsible Administrator as the representative of the responding party and the Office of the General Counsel as counsel for the responding party. The demand shall be filed with the AAA and shall not be deemed to have been made until all applicable fees have been paid to the AAA by the demanding party. Copies of the demand and attachments shall be sent to District's Responsible Administrator as the representative of the responding party and the District's Office of General Counsel as attorney for the responding party, at the addresses set forth in the Project Directory, at the time the demand for arbitration is initiated with the AAA.

4.7.2 Except as modified by this Article 4.7, arbitration shall be initiated and conducted in accordance with the Construction Industry Arbitration Rules of the AAA then in effect. The following additional modifications shall be made to the aforesaid AAA rules:

- .1 Civil discovery shall be permitted for the production of documents and taking of depositions. Other discovery may be permitted in the discretion of the arbitrator. All disputes regarding discovery shall be decided by the arbitrator.
- .2 District's Representative and/or District's consultants, shall if required by agreement with District, upon demand by District join in and be bound by the Arbitration. District's Representative and District's consultants will have the same rights in any arbitration proceeding as are afforded by the AAA rules to Contractor and District.
- .3 Contractor's sureties shall be bound by any arbitration award and may join in any arbitration proceeding.
- .4 Except as provided in Articles 4.7.2.2. and 4.7.2.3 above, no Subcontractor or other person shall have a right or obligation to join in or be a party to any arbitration proceeding provided for in this Article 4 either directly, by joinder, by consolidation or actions, by counterclaim or crossclaim, or otherwise without the express written consent of District, Contractor, and the joining party.
- .5 If more than one demand for arbitration is made by a party with respect to Claims referred to District's Representative, all such Claims shall be consolidated into a single arbitration unless the parties otherwise agree in writing.
- .6 If total Claims are less than \$50,000, AAA expedited procedures as modified by this Article 4 shall apply. If total Claims are between \$50,000 and \$100,000 they shall be heard by a single arbitrator who shall be an attorney. If total Claims are in excess of \$100,000 and are submitted to arbitration, either by agreement or by failure to elect litigation the controversy shall be heard by a panel of three arbitrators, one of which shall be an attorney.
- .7 No arbitrator shall be appointed and no discovery may be commenced prior to the date of Final Completion unless District and Contractor otherwise agree.
- .8 The exclusive forum for determining arbitrability shall be the Superior Court of the State of California. AAA shall not submit to any arbitrator any matter concerning the arbitrability of the dispute if the arbitrability is contested.
- .9 If the expedited procedures of the AAA are applicable, the AAA shall submit simultaneously to each party an identical list of 7 proposed arbitrators drawn from the National Panel of Commercial Arbitrators, and each party may strike 3 names from the list on a peremptory basis and return the list to AAA within 10 days from the date of receipt.
- .10 Except as provided herein, the arbitration shall be conducted and enforced under California law, including the California Arbitration Act (California Code of Civil Procedure section 1280 and following). The Federal Arbitration Act shall not apply to the arbitration.

4.7.3 Unless District and Contractor otherwise agree in writing, the arbitration decision shall be binding upon the parties, made under and in accordance with the laws of the State of California, supported by substantial evidence, and in writing. If the total of all Claims or cross Claims submitted to arbitration is in excess of \$50,000, the award shall contain the basis for the decision, findings of fact, and conclusions of law. Any arbitration award shall be subject to confirmation, vacation, or correction under the procedures and on the grounds specified in the California Code of Civil Procedure including without limitation Section 1296. The expenses and fees of the arbitrators and the administrative fees of

the AAA shall be divided among the parties equally. Each party shall pay its own counsel fees, witness fees, and other expenses incurred for its own benefit.

4.7.4 District may, but is not required, to assert as a counterclaim any matter arising out of the claims asserted by Contractor in the arbitration. District's failure to assert any such counterclaim in an arbitration shall be without prejudice to the District's right to assert the counterclaim in litigation or other proceeding.

4.8 WAIVER

4.8.1 A waiver of or failure by District or District's Representative to enforce any requirement in this Article 4, including without limitation the requirements in Articles 4.2, 4.3, 4.4, and 4.5 in connection with any Claim shall not constitute a waiver of, and shall not preclude the District or District's Representative from enforcing such requirements in connection with any other Claims.

4.8.2 The Contractor agrees and understands that no oral approval, either express or implied, of any Claim shall be binding upon District unless and until such approval is ratified by execution of a written Change Order.

END OF ARTICLE 4

ARTICLE 5

SUBCONTRACTORS

5.1 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.1.1 Unless otherwise stated in the Contract Documents, Contractor shall submit in writing, prior to entering into subcontract agreements, the names and addresses of all Subcontractors proposed for the Work that were not previously listed in Contractor's Bid.

5.1.2 Any Subcontractor may be disqualified if District or District's Representative determines that such Subcontractor fails to meet the requirements of the Contract Documents or for any other reason.

5.1.3 In accordance with the Subletting and Subcontracting Fair Practices Act, nothing herein shall be deemed to entitle Contractor, without the approval of District, to substitute other subcontractors for those named in Contractor's List of Subcontractors and List of Changes in Subcontractors Due to Alternates contained in the completed Bid Form; and, except with such approval, no such substitution shall be made.

5.1.4 Except as hereinafter provided, any increase in the cost of the Work resulting from the replacement or substitution of a Subcontractor, as required by District or District's Representative pursuant to Article 5.1 shall be borne solely by Contractor and Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time on account of such replacement or substitution.

5.2 SUBCONTRACTUAL RELATIONS

5.2.1 Any part of the Work performed for Contractor by a first-tier Subcontractor shall be pursuant to a written subcontract. Each such subcontract shall require the Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to Contractor by the terms of the Contract Documents, to assume toward Contractor all the obligations and responsibilities which Contractor assumes towards District by the Contract Documents, and to perform such portion of the Work in accordance with the Contract Documents. Each such subcontract shall preserve and protect the rights of District under the Contract Documents, with respect to the Work to be performed by Subcontractor, so that subcontracting thereof will not prejudice such rights. Contractor shall cause each such subcontract to expressly include the following requirements:

- .1 Subcontractor waives all rights that Subcontractor may have against District for damages caused by fire or other perils covered by builder's risk property insurance carried by Contractor or District, except for such rights Subcontractor may have to the proceeds of such insurance held by District under Article 11.
- .2 District and entities and agencies designated by District will have access to and the right to audit and the right to copy at District's cost all of Subcontractor's books, records, contracts, correspondence, instructions, drawings, receipts, vouchers, purchase orders, and memoranda relating to the Work. Subcontractor shall preserve all such records and other items for a period of at least 3 years after Final Completion.

- .3 Subcontractor recognizes the rights of District under Article 5.3, Contingent Assignment of Subcontracts, and agrees, upon notice from District that District has elected to accept said assignment and to retain Subcontractor pursuant to the terms of the subcontract, to complete the unperformed obligations under the subcontract and, if requested by District, to execute a written agreement confirming that Subcontractor is bound to District under the terms of the subcontract.

5.2.2 Upon the request of District, Contractor shall promptly furnish to District a true, complete, and executed copy of any subcontract.

5.2.3 Nothing contained in the Contract Documents shall create any contractual relationship between any Subcontractor and District, except when, and only to the extent that, District elects to accept the assignment of the subcontract with such Subcontractor pursuant to Article 5.3, Contingent Assignment of Subcontracts.

5.3 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

5.3.1 Contractor hereby assigns to District all its interest in first-tier subcontracts now or hereafter entered into by Contractor for performance of any part of the Work. The assignment will be effective upon acceptance by District in writing and only as to those subcontracts which District designates in writing. District may accept said assignment at any time during the course of the Work and prior to Final Completion in the event of a suspension or termination of Contractor's rights under the Contract Documents. Such assignment is part of the consideration to District for entering into the Contract with Contractor and may not be withdrawn prior to Final Completion.

END OF ARTICLE 5

ARTICLE 6

CONSTRUCTION BY DISTRICT OR BY SEPARATE CONTRACTORS

6.1 DISTRICT'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1 District reserves the right to award separate contracts for, or to perform with its own forces, construction or operations related to the Work or other construction or operations at or affecting the Project site, including portions of the Work which have been deleted by Change Order. Contractor shall cooperate with District's forces and Separate Contractors.

6.1.2 District will provide coordination of the activities of District's forces and of each Separate Contractor with the Work of Contractor. Contractor shall participate with District and Separate Contractors in joint review of construction schedules and Project requirements when directed to do so. Contractor shall make necessary revisions to the Contract Schedule after such joint review.

6.2 MUTUAL RESPONSIBILITY

6.2.1 Contractor shall afford District and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities. Contractor shall connect, schedule, and coordinate its construction and operations with the construction and operations of District and Separate Contractors as required by the Contract Documents.

6.2.2 If a portion of the Work is dependent upon the proper execution or results of other construction or operations by District or Separate Contractors, Contractor shall inspect such other construction or operations before proceeding with that portion of the Work. Contractor shall promptly report to District's Representative apparent discrepancies or defects which render the other construction or operations unsuitable to receive the Work. Unless otherwise directed by District's Representative, Contractor shall not proceed with the portion of the Work affected until apparent discrepancies or defects have been corrected. Failure of Contractor to so report within a reasonable time after discovering such discrepancies or defects shall constitute an acknowledgment that the other construction or operations by District or Separate Contractors is suitable to receive the Work, except as to defects not then reasonably discoverable.

6.3 DISTRICT'S RIGHT TO CLEAN UP

6.3.1 If a dispute arises between Contractor and Separate Contractors as to the responsibility under their respective contracts for maintaining the Project site and surrounding areas free from waste materials and rubbish, District may clean up and allocate the cost between those firms it deems to be responsible.

END OF ARTICLE 6

ARTICLE 7

CHANGES IN THE WORK

7.1 CHANGES

7.1.1 District may, from time to time, order or authorize additions, deletions, and other changes in the Work by Change Order or Field Order without invalidating the Contract and without notice to sureties. Absence of such notice shall not relieve such sureties of any of their obligations to District.

7.1.2 Contractor may request a Change Order under the procedures specified in Article 4.2.

7.1.3 A Field Order may be issued by District, does not require the agreement of Contractor, and shall be valid with or without the signature of Contractor.

7.1.4 Contractor shall proceed promptly with any changes in the Work, unless otherwise provided in the relevant Change Order or Field Order.

7.2 DEFINITIONS

7.2.1 A Change Order is a Contract Document (as shown in the Exhibits) which has been signed by both District and Contractor, and states their agreement, as applicable, to the following:

- .1 A change in the Work, if any.
- .2 The amount of an adjustment of the Contract Sum, if any.
- .3 The amount of an adjustment of the Contract Time, if any.
- .4 A modification to any other Contract term or condition.

7.2.2 A Unilateral Change Order may be issued by District, without the Contractor's signature, where the District determines that a change in the Work requires an adjustment of the Contract Sum or Contract Time, even though no agreement has been reached between District and Contractor with regard to such change in the Work.

7.2.3 A Field Order (as shown in the Exhibits) is a Contract Document issued by the District that orders the Contractor to perform Work. A Field Order may, but need not, constitute a change in the Work and may, but need not, entitle Contractor to an adjustment of the Contract Sum or Contract Time.

7.3 CHANGE ORDER PROCEDURES

7.3.1 Contractor shall provide a Change Order Request and Cost Proposal pursuant to Article 4.2 and this Article 7.3 of the General Conditions. Adjustments of the Contract Sum resulting from Extra Work and Deductive Work shall be determined using one of the methods described in this Article 7.3. Adjustments of the Contract Time shall be subject to the provisions in Article 8. Contractor's obligation to provide Cost Proposals shall be subject to the following:

- .1 The obligation of Contractor to provide Cost Proposals is not Extra Work, and shall not entitle the Contractor to an adjustment of the Contract Sum or Contract Time.

- .2 The failure of Contractor to timely provide a Cost Proposal pursuant to Article 4.2 and this Article 7.3.1 is a material breach of the Contract. Contractor shall be responsible for any delay in implementing a change for which Contractor failed to timely provide a Cost Proposal consistent with the requirements of Article 4.2 and this Article 7.3.1.

7.3.2 The term “Cost of Extra Work” as used in this Article 7.3 shall mean actual costs incurred or to be incurred by Contractor and each Subcontractor regardless of tier involved, to the extent not otherwise disallowed under Article 7.3.3, and shall be limited to the following (to the extent the Contractor demonstrates that the costs are both reasonable and actually incurred, if such costs have been incurred):

- .1 Straight-time wages or salaries for employees employed at the Project site, or at fabrication sites off the Project site, incurred as a result of the performance of the Extra Work.
- .2 Fringe Benefits and Payroll Taxes for employees employed at the Project site, or at fabrication sites off the Project site, incurred as a result of the performance of the Extra Work.
- .3 Overtime wages or salaries, specifically authorized in writing by District’s Representative, for employees employed at the Project site, or at fabrication sites off the Project site, incurred as a result of the performance of the Extra Work.
- .4 Fringe Benefits and Payroll Taxes for overtime Work specifically authorized in writing by District’s Representative, for employees employed at the Project site, or at fabrication sites off the Project site, incurred as a result of the performance of the Extra Work.
- .5 Costs of materials and consumable items which are furnished and incorporated into the Extra Work, as approved by District’s Representative. Such costs shall be charged at the lowest price available to the Contractor but in no event shall such costs exceed competitive costs obtainable from other subcontractors, suppliers, manufacturers, and distributors in the area of the Project site. All discounts, rebates, and refunds and all returns from sale of surplus materials and consumable items shall accrue to District and Contractor shall make provisions so that they may be obtained.
- .6 Sales taxes on the costs of materials and consumable items which are incorporated into and used in the performance of the Extra Work pursuant to Article 7.3.2.5 above.
- .7 Rental charges for necessary machinery and equipment, whether owned or hired, as authorized in writing by District’s Representative, exclusive of hand tools, used directly in the performance of the Extra Work. Such rental charges shall not exceed the current Equipment Rental Rates published by the California Department of Transportation for the area in which the work is performed. Such rental rates are found at <http://www.dot.ca.gov/hq/construc/equipmnt.html>. Contractor shall attach a copy of said schedule to the Cost Proposal. The charges for any machinery and equipment shall cease when the use thereof is no longer necessary for the Extra Work.
- .8 Additional costs of royalties and permits due to the performance of the Extra Work.
- .9 The cost for Insurance and Bonds shall not exceed 2% of items .1 through .8 above.

District and Contractor may agree upon rates to be charged for any of the items listed in this Article 7.3.2. Such agreed upon rates shall be subject to audit pursuant to Article 15.7. Contractor shall promptly refund to District any amounts (including associated mark-ups) in excess of the actual costs of such items.

7.3.3 Cost of Extra Work shall not include any of the following:

- .1 Superintendent(s).
- .2 Assistant Superintendent(s).
- .3 Project Engineer(s).
- .4 Project Manager(s).
- .5 Scheduler(s).
- .6 Estimator(s).
- .7 Small tools (Replacement value does not exceed \$300).
- .8 Office expenses including staff, materials and supplies.
- .9 On-site or off-site trailer and storage rental and expenses.
- .10 Site fencing.
- .11 Utilities including gas, electric, sewer, water, telephone, facsimile, copier equipment.
- .12 Data processing personnel and equipment.
- .13 Federal, state, or local business income and franchise taxes.
- .14 Overhead and Profit.
- .15 Costs and expenses of any kind or item not specifically and expressly included in Article 7.3.2.

7.3.4 The term “Contractor Fee” shall mean the full amount of compensation, both direct and indirect (including without limitation all overhead and profit), to be paid to Contractor for its own Work and the Work of all Subcontractors, for all costs and expenses not included in the Cost of Extra Work, whether or not such costs and expenses are specifically referred to in Article 7.3.3. The Contractor Fee shall not be compounded. The Contractor Fee shall be computed as follows:

- .1 Fifteen percent (15%) of the cost of that portion of the Extra Work to be performed by the prime contractor with its own forces.
- .2 Fifteen percent (15%) of the cost of that portion of the Work to be performed by a Subcontractor with its own forces, plus 5% for the prime contractor. Total combined Contractor and Subcontractor fee shall not exceed 20%.
- .3 Fifteen percent (15%) of the cost of that portion of the Work to be performed by a sub-subcontractor with its own forces, or any lower tier of Subcontractor, plus 5% for the Subcontractor, plus 5% for the prime contractor. Total combined Contractor, Subcontractor and all sub-subcontractor fee shall not exceed 25%.

7.3.5 Compensation for Extra Work shall be computed on the basis of one or more of the following:

- .1 Where the Work involved is covered by Unit Prices contained in the Contract Documents, by application of the Unit Prices to the quantities of the items involved.
- .2 Where Unit Prices are not applicable, a mutually agreed upon lump sum supported by a Cost Proposal pursuant to 7.3.1.
- .3 Where Contractor and District cannot agree upon a lump sum, by Cost of Extra Work plus Contractor Fee applicable to such Extra Work.

7.3.6 As a condition to Contractor's right to an adjustment of the Contract Sum pursuant to Article 7.3.5.3, Contractor must keep daily detailed and accurate records itemizing each element of cost and shall provide substantiating records and documentation, including time cards and invoices. Such records and documentation shall be submitted to District's Representative on a daily basis.

7.3.7 For Work to be deleted by Change Order, the reduction of the Contract Sum shall be computed on the basis of one or more of the following:

- .1 Unit Prices stated in the Contract Documents.
- .2 Where Unit Prices are not applicable, a lump sum agreed upon by District and Contractor, based upon the actual costs which would have been incurred in performing the deleted portions of the Work as calculated in accordance with Articles 7.3.2 and 7.3.3, supported by a Cost Proposal pursuant to Article 7.3.1.

7.3.8 If any one Change involves both Extra Work and Deleted Work in the same portion of the Work, a Contractor fee will not be allowed if the deductive cost exceeds the additive cost. If the additive cost exceeds the deductive cost, a Contractor Fee will be allowed only on the difference between the two amounts.

7.3.9 The Contract Sum will be adjusted for a delay if, and only if, Contractor demonstrates that all of the following three conditions are met:

- .1 Condition Number One: The delay results in an extension of the Contract Time pursuant to Article 8.4.1.
- .2 Condition Number Two: The delay is caused solely by one or more of the following:
 - .1 An error or omission in the Contract Documents; or
 - .2 The District's decision to change the scope of the Work, where such decision is not the result of any default or misconduct of the Contractor; or
 - .3 The District's decision to suspend the Work, where such decision is not the result of any default or misconduct of the Contractor; or
 - .4 The failure of the District, (including the District acting through its consultants, Design Professionals, or Separate Contractors or the District's Representative) to perform any Contract obligation where the failure to so perform is not the result of any default or misconduct of the Contractor.
 - .5 A materially differing site condition pursuant to Article 3.17.
- .3 Condition Number Three: The delay is not concurrent with a delay caused by an event other than those listed in Article 7.3.9.2.

7.3.10 For each day of delay that meets all three conditions prescribed in Article 7.3.9 the Contract Sum will be adjusted by the daily rate included in the Agreement and specifically identified as the rate to be paid to Contractor for Compensable Delays. Pursuant to Article 9.7.4, said daily rate shall not apply to delays occurring after Substantial Completion.

7.3.11 Except as provided in Articles 7 and 8, Contractor shall have no claim for damage or compensation for any delay, interruption, hindrance, or disruption.

7.3.12 If for any reason one or more of the conditions prescribed in Article 7.3.9 is held legally unenforceable, the remaining conditions must be met as a condition to obtaining an adjustment of the Contract Time under Article 7.3.10.

7.4 FIELD ORDERS

7.4.1 Field Orders issued by the District Representative shall be subject to the following:

- .1 A Field Order may state that it does or does not constitute a change in the Work.
- .2 If the Field Order states that it does not constitute a change in the Work and the Contractor asserts that the Field Order constitutes a change in the Work, in order to obtain an adjustment of the Contract Sum or Contract Time for the Work encompassed by the Field Order, Contractor must follow all procedures set forth in Article 4, starting with the requirement of submitting a timely Change Order Request within 7 days of Contractor's receipt of the Field Order; failure to strictly follow those procedures is a bar to any Claim for an adjustment of the Contract Sum or Contract Time arising from performance of the Work described in the Field Order.
- .3 If the Field Order states that it does constitute a change in the Work, the Work described in the Field Order shall be considered Extra Work and the Contractor shall be entitled to an adjustment of the Contract Sum and Contract Time, calculated under and subject to Contractor's compliance with the procedures for verifying and substantiating costs and delays in Articles 7 and 8.
- .4 In addition, if the Field Order states that it does constitute a change in the Work, the Field Order may or may not contain District's estimate of adjustment of Contract Sum and/or Contract Time. If the Field Order contains an estimate of adjustment of Contract Sum or Contract Time, the Field Order is subject to the following:
 - .1 The Contractor shall not exceed the District's estimate of adjustment to Contract Sum or Contract Time without prior written notification to the District's Representative.
 - .2 If the Contractor asserts that the change in the Work encompassed by the Field Order may entitle Contractor to an adjustment of Contract Sum or Contract Time in excess of the District's estimate, in order not to be bound by District's estimate Contractor must follow all procedures set forth in Article 4, starting with the requirement of submitting a timely Change Order Request within 7 days of Contractor's receipt of the Field Order; failure to strictly follow those procedures is a bar to any Claim for an adjustment of the Contract Sum or Contract Time, in excess of the District's estimate, arising from performance of the Work described in the Field Order.

7.4.2 Upon receipt of a Field Order, Contractor shall promptly proceed to perform the Work as ordered in the Field Order notwithstanding any disagreement by the Contractor concerning whether the Work is extra.

7.5 VARIATION IN QUANTITY OF UNIT PRICE WORK

7.5.1 District has the right to increase or decrease the quantity of any Unit price item for which an Estimated Quantity is stated in the Bid Form.

7.6 WAIVER

7.6.1 A waiver of or failure by District or District's Representative to enforce any requirement in this Article 7, including without limitation the requirements in Articles 7.3.6, 7.3.8, 7.3.9, 7.3.10, 7.3.11, or 7.3.12 in connection with any adjustment of the Contract Sum, will not constitute a waiver of, and will not preclude the District or District's Representative from enforcing, such requirements in connection with any other adjustments of the Contract Sum.

7.6.2 The Contractor agrees and understands that no oral approval, either express or implied, of any adjustment of the Contract Sum by District or its agents shall be binding upon District unless and until such approval is ratified by execution of a written Change Order.

END OF ARTICLE 7

ARTICLE 8

CONTRACT TIME

8.1 COMMENCEMENT OF THE WORK

8.1.1 The date of commencement of the Work shall be set forth in the Notice To Proceed. The date of commencement of the Work shall not be postponed by the failure of Contractor, Subcontractors, or of persons or firms for whom Contractor is responsible, to act.

8.2 PROGRESS AND COMPLETION

8.2.1 By signing the Agreement:

- .1 Contractor represents to District that the Contract Time is reasonable for performing the Work and that Contractor is able to perform the Work within the Contract Time.
- .2 Contractor agrees that District is purchasing the right to have the Contractor present on the Project site for the full duration of the Contract Time, even if Contractor could finish the Contract in less than the Contract Time.

8.2.2 Contractor shall not, except by agreement or instruction of District in writing, commence operations on the Project site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by Contractor. The dates of commencement and Final Completion of the Work shall not be changed by the effective date of such insurance.

8.2.3 Contractor shall proceed expeditiously with adequate forces and shall achieve full Completion of the Work within the Contract Time. If District's Representative determines and notifies Contractor that Contractor's progress is such that Contractor will not achieve full Completion of the Work within the Contract Time, Contractor shall immediately and at no additional cost to District, take all measures necessary, including working such overtime, additional shifts, Sundays, or holidays as may be required to ensure that the Work is fully completed within the Contract Time. Upon receipt of such notice from District's representative, Contractor shall immediately notify District's Representative of all measures to be taken to ensure full Completion of the Work within the Contract Time. Contractor shall reimburse District for any extra costs or expenses (including the reasonable value of any services provided by District's employees) incurred by District as the result of such measures.

8.3 DELAY

8.3.1 Except and only to the extent provided otherwise in Articles 7 and 8, by signing the Agreement, Contractor agrees:

- .1 to bear the risk of delays to the Work; and
- .2 that Contractor's bid for the Contract was made with full knowledge of this risk.

In agreeing to bear the risk of delays to the Work, Contractor understands that, except and only to the extent provided otherwise in Articles 7 and 8, the occurrence of events that delay the Work shall not

excuse Contractor from its obligation to achieve Final Completion of the Work within the Contract Time, and shall not entitle the Contractor to an adjustment of the Contract Sum.

8.4 ADJUSTMENT OF THE CONTRACT TIME FOR DELAY

8.4.1 Subject to Article 8.4.2, the Contract Time will be extended for each day of delay for which Contractor demonstrates that all of the following four conditions have been met; a time extension will not be granted for any day of delay for which Contractor fails to demonstrate compliance with the four conditions:

- .1 Condition Number One: The delay is critical. A delay is critical if and only to the extent it delays a work activity that cannot be delayed without delaying Final Completion of the Work beyond the Contract Time. Under this Article 8.4.1.2, if the Contract Schedule shows Final Completion of the Work before expiration of the Contract Time, a delay is critical if and only to the extent the delay pushes Final Completion of the Work to a date that is beyond the Contract Time.
- .2 Condition Number Two: Within 7 days of the date the Contractor discovers or reasonably should discover an act, error, omission or unforeseen condition or event causing the delay is likely to have an impact on the critical path of the Project, (even if the Contractor has not yet been delayed when the Contractor discovers or reasonably should discover the critical path impact of the act, error, omission or unforeseen condition giving rise to the delay) the Contractor submits both a timely and complete Change Order Request that meets the requirements of Article 4.2.
- .3 Condition Number Three: The delay is not caused by:
 - .1 A concealed, unforeseen or unknown condition or event except for a materially differing site condition pursuant to Article 3.17; or
 - .2 The financial inability, misconduct or default of the Contractor, a Subcontractor or supplier; or
 - .3 The unavailability of materials or parts.
- .4 Condition Number Four: The delay is caused by:
 - .1 Fire; or
 - .2 Strikes, boycotts, or like obstructive actions by labor organizations; or
 - .3 Acts of God (As used herein, "Acts of God" shall include only earthquakes in excess of a magnitude of 3.5 on the Richter Scale and tidal waves); or
 - .4 A materially differing site condition pursuant to Article 3.17; or
 - .5 An error or omission in the Contract; or
 - .6 The District's decision to change the scope of the Work, where such decision is not the result of any default or misconduct of the Contractor; or
 - .7 The District's decision to suspend the Work, where such decision is not the result of any default or misconduct of the Contractor; or
 - .8 The failure of the District, (including the District acting through its consultants, Design Professionals, or Separate Contractors or the District's representative to perform any Contract obligation unless

such failure is due to Contractor's default or misconduct.

- .9 “Adverse weather,” but only for such days of adverse weather, or on-site conditions caused by adverse weather, that are in excess of the number of days specified in the Supplementary Conditions. In order for a day to be considered a day of adverse weather for the purpose of determining whether Contractor is entitled to an adjustment in Contract Time, both of the following conditions must be met:
 - .1 the day must be a day in which, as a result of adverse weather, less than one half day of critical path work is performed by Contractor; and
 - .2 the day must be identified in the Contract Schedule as a scheduled work day.

8.4.2 If and only if a delay meets all four conditions prescribed in Article 8.4.1, then a time extension will be granted for each day that Final Completion of the Work is delayed beyond the Contract Time, subject to the following:

- .1 When two or more delays (each of which meet all four conditions prescribed in Article 8.4.1) occur concurrently on the same day, and each such concurrent delay by itself without consideration of the other delays would be critical, then all such concurrent delays shall be considered critical. For the purpose of determining whether and to what extent the Contract Time should be adjusted pursuant to Article 8.4.2, such concurrent critical delays shall be treated as a single delay for each such day.
- .2 Contractor shall be entitled to a time extension for a day of delay that meets all four requirements of Article 8.4.1 if the delay is concurrent with a delay that does not meet all four conditions of Article 8.4.1.

8.4.3 If for any reason one or more of the four conditions prescribed in Article 8.4.1 is held legally unenforceable, then all remaining conditions must be met as a condition to obtaining an extension of the Contract Time under Article 8.4.2.

SEE SUPPLEMENTARY CONDITIONS

8.5 COMPENSATION FOR DELAY

8.5.1 To the maximum extent allowed by law, any adjustment of the Contract Sum as the result of delays shall be limited to the amounts specified in Article 7. Such adjustment shall, to the maximum extent allowed by law, constitute payment in full for all delay related costs (including costs for disruption, interruption and hindrance, general conditions, on and off-site overhead and profit) of Contractor, its Suppliers and Subcontractors of all tiers and all persons and entities working under or claiming through Contractor in connection with the Project.

8.5.2 By signing the Agreement, the parties agree that the District is buying the right to do any or all of the following, which are reasonable and within the contemplation of the parties:

- .1 To order changes in the Work, regardless of the extent and number of changes, including without limitation:
 - .1 Changes to correct errors or omissions, if any, in the Contract Documents.
 - .2 Changes resulting from the District's decision to change the scope of the Work subsequent to execution of the Contract.
 - .3 Changes due to unforeseen conditions.
- .2 To suspend the Work or any part thereof.
- .3 To delay the Work, including without limitation, delays resulting from the failure of the District or the District's Representative to timely perform any Contract obligation and delays for District's convenience.

8.6 WAIVER

8.6.1 A waiver of or failure by District or District's Representative to enforce any requirement in this Article 8, including without limitation the requirements in Article 8.4, in connection with any or all past delays shall not constitute a waiver of, and shall not preclude the District or District's Representative from enforcing, such requirements in connection with any present or future delays.

8.6.2 Contractor agrees and understands that no oral approval, either express or implied, of any time extension by District or its agents shall be binding upon District unless and until such approval is ratified by execution of a written Change Order.

END OF ARTICLE 8

ARTICLE 9

PAYMENTS AND COMPLETION

9.1 COST BREAKDOWN

9.1.1 Within 10 days after receipt of the Notice of Selection as the apparent lowest responsible Bidder, and with the Agreement, Contractor shall submit to District's Representative a Cost Breakdown of the Contract Sum in the form contained in the Exhibits. The Cost Breakdown shall itemize as separate line items the cost of each Work Activity and all associated costs, including but not limited to warranties, as-built documents, overhead expenses, and the total allowance for profit. Insurance and bonds shall each be listed as separate line items. The total of all line items shall equal the Contract Sum. The Cost Breakdown, when approved by the District's Representative, shall become the basis for determining the cost of Work performed for Contractor's Applications for Payment.

9.2 PROGRESS PAYMENT

9.2.1 District agrees to pay monthly to Contractor, subject to Article 9.4.3, an amount equal to 95% of the sum of the following:

- .1 Cost of the Work in permanent place as of the date of the Contractor's Application For Payment.
- .2 Plus cost of materials not yet incorporated in the Work, subject to Article 9.3.5.
- .3 Less amounts previously paid.

Under this Article 9.2.1, District may, but is not required, to pay Contractor more frequently than monthly.

9.2.2 After Substantial Completion and subject to Article 9.4.3, District will make any of the remaining progress payments in full.

9.3 APPLICATION FOR PAYMENT

9.3.1 On or before the 10th day of the month or such other date as is established by the Contract Documents, Contractor shall submit to District's Representative an itemized Application For Payment, for the cost of the Work in permanent place, as approved by District's Representative, which has been completed in accordance with the Contract Documents, less amounts previously paid.

The Application For Payment shall be prepared as follows:

- .1 Use the form contained in the Exhibits.
- .2 Itemize in accordance with the Cost Breakdown.
- .3 Include such data substantiating Contractor's right to payment as District's Representative may reasonably require, such as invoices, certified payrolls, daily time and material records, and, if securities are deposited in lieu of retention pursuant to Article 9.5, a certification of the market value of all such securities as of a date not earlier than 5 days prior to the date of the Application For Payment.

.4 Itemize retention.

9.3.2 Applications For Payment shall not include requests for payment on account of (1) changes which have not been authorized by Change Orders or (2) amounts Contractor does not intend to pay a Subcontractor because of a dispute or other reason.

9.3.3 If required by District, an Application For Payment shall be accompanied by (1) a summary showing payments that will be made to Subcontractors covered by such application and conditional releases upon progress payment or final payment and (2) unconditional waivers and releases of claims and stop notices, in the form contained in the Exhibits, from each Subcontractor listed in the preceding Application For Payment covering sums disbursed pursuant to that preceding Application For Payment.

9.3.4 Contractor warrants that, upon submittal of an Application For Payment, all Work, for which Certificates For Payment have been previously issued and payment has been received from District, shall be free and clear of all claims, stop notices, security interests, and encumbrances in favor of Contractor, Subcontractors, or other persons or firms entitled to make claims by reason of having provided labor, materials, or equipment relating to the Work.

9.3.5 At the sole discretion of District, District's Representative may approve for inclusion in the Application For Payment the cost of materials not yet incorporated in the Work but already delivered and suitably stored either at the Project site or at some other appropriate location acceptable to District's Representative. In such case, Contractor shall furnish evidence satisfactory to District's Representative (1) of the cost of such materials and (2) that such materials are under the exclusive control of Contractor. Only materials to be incorporated in the Work will be considered for payment. Any payment shall not be construed as acceptance of such materials nor relieve Contractor from sole responsibility for the care and protection of such materials; nor relieve Contractor from risk of loss to such materials from any cause whatsoever; nor relieve Contractor from its obligation to complete the Work in accordance with the Contract; nor act as a waiver of the right of District to require fulfillment of all terms of the Contract. Nothing contained within this Article 9.3.5 shall be deemed to obligate District to agree to payment for any non-incorporated materials or any part thereof, payment being in the sole and absolute discretion of District.

9.4 CERTIFICATE FOR PAYMENT

9.4.1 If Contractor has submitted an Application For Payment in accordance with Article 9.3, District's Representative shall, not later than 5 working days after the date of receipt of the Application For Payment, issue to District, with a copy to Contractor, a Certificate For Payment for such amount as District's Representative determines to be properly due.

9.4.2 If any such Application For Payment is determined not to be in accordance with Article 9.3, District will inform Contractor as soon as practicable, but not later than 5 working days after receipt. Thereafter, Contractor shall have 3 days to revise and resubmit such Application For Payment; otherwise District's Representative may issue a Certificate For Payment in the amount that District's Representative determines to be properly due without regard to such Application For Payment.

9.4.3 Approval of all or any part of an Application For Payment may be withheld, a Certificate For Payment may be withheld, and all or part of a previous Certificate For Payment may be nullified and that amount withheld from a current Certificate For Payment on account of any of the following:

- .1 Defective Work not remedied.
- .2 Third-party claims against Contractor or District arising from the acts or omissions of Contractor or Subcontractors.
- .3 Stop notices. Subcontractors submitting Stop Notices should be sent by Certified Mail to: Kingsburg Joint Union High School District, Attn: Mr. Roger Carender, Project Manager, 1900 18th Ave., Kingsburg, CA 93631
- .4 Failure of Contractor to make timely payments due Subcontractors for material or labor.
- .5 A reasonable doubt that the Work can be completed for the balance of the Contract Sum then unpaid.
- .6 Damage to District or Separate Contractor for which Contractor is responsible.
- .7 Reasonable evidence that the Work will not be completed within the Contract Time; and that the unpaid balance of the Contract Sum would not be adequate to cover District's damages for the anticipated delay.
- .8 Failure of Contractor to maintain and update as-built documents.
- .9 Failure of Contractor to submit schedules or their updates as required by the Contract Documents.
- .10 Failure to provide conditional or unconditional releases from any Subcontractor or supplier, if such waiver(s) have been requested by District's Representative.
- .11 Performance of Work by Contractor without properly processed Shop Drawings.
- .12 Liquidated damages assessed in accordance with Article 5 of the Agreement.
- .13 Failure to provide updated Reports of Subcontractor Information and Self-Certifications, as applicable.
- .14 Failure to provide a Final Distribution of Contract Dollars with final Application for Payment.
- .15 Any other failure of Contractor to perform its obligations under the Contract Documents.

9.4.4 Subject to the withholding provisions of Article 9.4.3, District will pay Contractor the amount set forth in the Certificate For Payment no later than 10 days after the issuance of the Certificate For Payment.

9.4.5 Neither District nor District's Representative will have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

9.4.6 Neither a Certificate For Payment nor a progress payment made by District will constitute acceptance of Defective Work.

9.5 DEPOSIT OF SECURITIES IN LIEU OF RETENTION AND DEPOSIT OF RETENTION INTO ESCROW

9.5.1 At the request and expense of Contractor, a substitution of securities may be made for any monies retained by District under Article 9.2 to ensure performance under the Contract Documents. Securities equivalent in value to the retention amount required by the Contract Documents for each Certificate For Payment shall be deposited by Contractor with a state or federally chartered bank in the State of California ("Escrow Agent"), which shall hold such securities pursuant to the escrow agreement referred to in Article 9.5.3 until retention is due in accordance with Article 9.8. Securities shall be valued as often as conditions of the securities market warrant, but in no case less than once per month.

Contractor shall deposit additional securities so that the current market value of the total of all deposited securities shall be at least equal to the total required amount of retention.

9.5.2 Alternatively to Article 9.5.1, and at the request and expense of Contractor, District will deposit retention directly with Escrow Agent. Contractor may direct the investment of such deposited retention into interest bearing accounts or securities, and such deposits or securities shall be held by Escrow Agent upon the same terms provided for securities deposited by Contractor. Contractor and its surety shall bear the risk of failure of the Escrow Agent selected.

9.5.3 A prerequisite to the substitution of securities in lieu of retention or the deposit of retention into escrow shall be the execution by Contractor, District, and Escrow Agent of an Escrow Agreement for Deposit of Securities in Lieu of Retention and Deposit of Retention in the form contained in the Exhibits. The Contractor shall submit the Selection of Retention Options and the Escrow Agreement for Deposit of Securities in Lieu of Retention and Deposit of Retention not later than the date when 50% of the Work has been completed. The terms of such escrow agreement are incorporated into the requirements of this Article 9.5.

9.6 BENEFICIAL OCCUPANCY

9.6.1 District reserves the right, at its option and convenience, to occupy or otherwise make use of any part of the Work at any time prior to Substantial Completion or Final Completion upon 10 days' notice to Contractor. Such occupancy or use is herein referred to as "Beneficial Occupancy." Beneficial Occupancy shall be subject to the following conditions:

- .1 District's Representative will make an inspection of the portion of the Project to be beneficially occupied and prepare a list of items to be completed or corrected prior to Final Completion. Prior to Beneficial Occupancy, District will issue a Certificate of Beneficial Occupancy on District's form.
- .2 Beneficial Occupancy by District shall not be construed by Contractor as an acceptance by District of that portion of the Work which is to be occupied.
- .3 Beneficial Occupancy by District shall not constitute a waiver of existing claims of District or Contractor against each other.
- .4 Contractor shall provide, in the areas beneficially occupied and on a 24 hour and 7 day week basis as required, utility services, heating, and cooling for systems which are in operable condition at the time of Beneficial Occupancy. All responsibility for the operation and maintenance of equipment shall remain with Contractor while the equipment is so operated. Contractor shall submit to District an itemized list of each piece of equipment so operated with the date operation commences.
- .5 The Guarantee to Repair Periods, as defined in Article 12.2, will commence upon the occupancy date stated in the Certificate of Beneficial Occupancy except that the Guarantee to Repair Periods for that part of equipment or systems that serve portions of the Work for which District has not taken Beneficial Occupancy or issued a Certificate of Substantial Completion shall not commence until the District has taken Beneficial Occupancy for that portion of the Work or has issued a Certificate of Substantial Completion with respect to the entire Project.
- .6 District will pay all normal operating and maintenance costs resulting from its use of equipment in areas beneficially occupied.
- .7 District will pay all utility costs which arise out of the Beneficial Occupancy.

- .8 Contractor shall not be responsible for providing security in areas beneficially occupied.
- .9 District will use its best efforts to prevent its Beneficial Occupancy from interfering with the conduct of Contractor's remaining Work.
- .10 Contractor shall not be required to repair damage caused by District in its Beneficial Occupancy.
- .11 Except as provided in this Article 9.6, there shall be no added cost to District due to Beneficial Occupancy.
- .12 Contractor shall continue to maintain all insurance required by the Contract in full force and effect.

9.7 SUBSTANTIAL COMPLETION

9.7.1 “Substantial Completion” means the stage in the progress of the Work, as determined by District’s Representative, when the Work is complete and in accordance with the Contract Documents except only for completion of minor items which do not impair District’s ability to occupy and fully utilize the Work for its intended purpose and a Certificate of Occupancy has been issued by the District’s Building Official.

9.7.2 When Contractor gives notice to District’s Representative that the Work is substantially complete, unless District’s Representative determines that the Work is not sufficiently complete to warrant an inspection to determine Substantial Completion, District’s Representative will inspect the Work. If the District’s Representative determines that the Work is not substantially completed the District’s Representative will prepare and give to Contractor a comprehensive list of items to be completed or corrected before establishing Substantial Completion. Contractor shall proceed promptly to complete and correct items on the list. Failure to include an item on such list does not alter the responsibility of Contractor to complete all Work in accordance with the Contract Documents. Upon notification that the items on the list are completed or corrected, as applicable, the District’s Representative will make an inspection to determine whether the Work is substantially complete. Costs for additional inspection by District’s Representative shall be deducted from any monies due and payable to Contractor.

9.7.3 When District’s Representative determines that the Work is substantially complete, District’s Representative will arrange for inspection by District’s Building Official and other officials, as appropriate, for the purpose of issuing a Certificate of Occupancy. After a Certificate of Occupancy has been issued by the District’s Building Official, the District’s Representative will prepare a Certificate of Substantial Completion on District’s form as contained in the Exhibits, which, when signed by District, shall establish the date of Substantial Completion and the responsibilities of District and Contractor for security, maintenance, utilities, insurance, and damage to the Work. The District’s Representative will prepare and furnish to the Contractor a comprehensive “punch list” of items to be completed or corrected prior to Final Completion.

9.7.4 Unless otherwise provided in the Certificate of Substantial Completion, the Guarantee To Repair Period for the Work covered by the Certificate of Substantial Completion, shall commence on the date of Substantial Completion of the Work except that Substantial Completion shall not commence the Guarantee to Repair Period for any equipment or systems that:

- .1 Are not operational (equipment or systems shall not be considered operational if they cannot be used to provide the intended service; or

- .2 Are not accepted by the District.

The Guarantee To Repair Period for equipment or systems which become operational and accepted subsequent to Substantial Completion will begin on the date of their written acceptance by District.

9.7.5 The daily rate included in the Agreement and specifically identified as the rate to be paid to Contractor for Compensable Delays shall not apply to any delays occurring after the Work is substantially completed.

9.8 FINAL COMPLETION AND FINAL PAYMENT

9.8.1 Upon receipt of notice from Contractor that the Work is ready for final inspection, District's Representative will make such inspection. Final Completion shall be when District's Representative determines that the Work is fully completed and in accordance with the Contract Documents, including without limitation, satisfaction of all "punch list" items, and determines that a Certificate of Occupancy has been issued by the District's Building Official. District will file a Notice of Completion within 10 days after Final Completion. After receipt of the final Application For Payment, if District's Representative determines that Final Completion has occurred, District's Representative will issue the final Certificate For Payment.

9.8.2 Final payment and retention shall be released to Contractor, as set forth in Article 9.8.3 after:

- .1 Contractor submits the final Application For Payment and all submittals required in accordance with Article 9.3;
- .2 Contractor submits all guarantees and warranties procured by Contractor from Subcontractors, all operating manuals for equipment installed in the Project, as-built documents, and all other submittals required by the Contract Documents;
- .3 Contractor submits the Final Distribution of Contract Dollars in the form contained in the Exhibits; and
- .4 District's Representative issues the final Certificate For Payment.

At its sole discretion, after Final Completion, District may waive the requirement that Contractor submit a final Application For Payment before making final payment and/or release of retention to Contractor.

9.8.3 Final payment shall be paid not more than 10 days after District's Representative issues the final Certificate For Payment. Retention shall be released to Contractor 35 days after the filing of the Notice of Completion.

9.8.4 Acceptance of final payment by Contractor shall constitute a waiver of all claims, except claims for retention and claims previously made in writing and identified by Contractor as unsettled at the time of the final Application For Payment.

END OF ARTICLE 9

ARTICLE 10

PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 Contractor shall take adequate precautions for safety of and shall provide adequate protection to prevent damage, injury, or loss to the following:

- .1 Employees involved in the Work and other persons who may be affected thereby.
- .2 The Work in place and materials and equipment to be incorporated therein, whether in storage on or off the Project site, under care, custody, or control of Contractor or Subcontractors.
- .3 Other property at the Project site and adjoining property.

10.2.2 Contractor shall erect and maintain, as required by existing conditions and performance of the Work, adequate safeguards for safety and protection, including providing adequate lighting and ventilation, posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent sites and utilities.

10.2.3 When use or storage of explosives, other hazardous materials, equipment, or unusual methods are necessary for execution of the Work, Contractor shall exercise the utmost care and carry on such activities only under the supervision of properly qualified personnel.

10.2.4 Contractor shall designate a responsible member of Contractor's organization at the Project site whose duty shall be the prevention of accidents. That person shall be the Superintendent, unless otherwise designated by Contractor in writing to District and District's Representative.

10.2.5 Contractor shall not load or permit any part of the Work or the Project site to be loaded so as to endanger the safety of persons or property.

10.3 EMERGENCIES

10.3.1 In an emergency affecting the safety of persons or property, Contractor shall act to prevent or minimize damage, injury, or loss. Contractor shall promptly notify District's Representative, which notice may be oral followed by written confirmation, of the occurrence of such an emergency and Contractor's action.

END OF ARTICLE 10

ARTICLE 11

(NOT USED)

ARTICLE 12

UNCOVERING AND CORRECTION OF WORK

12.1 UNCOVERING OF WORK

12.1.1 If a portion of the Work is covered contrary to District's Representative's request or direction, or contrary to the requirements of the Contract Documents, it must, if required in writing by District's Representative, be uncovered for District's Representative's observation and be replaced at Contractor's expense without adjustment of the Contract Time or the Contract Sum.

12.1.2 If a portion of the Work has been covered, which is not required by the Contract Documents to be observed or inspected prior to its being covered and which District's Representative has not specifically requested to observe prior to its being covered, District's Representative may request to see such Work and it shall be uncovered and replaced by Contractor. If such Work is in accordance with the Contract Documents, the costs of uncovering and replacing the Work shall be added to the Contract Sum by Change Order; and if the uncovering and replacing of the Work extends the Contract Time, an appropriate adjustment of the Contract Time shall be made by Change Order. If such Work is not in accordance with the Contract Documents, Contractor shall pay such costs and shall not be entitled to an adjustment of the Contract Time or the Contract Sum.

12.2 CORRECTION OF DEFECTIVE WORK AND GUARANTEE TO REPAIR PERIOD

12.2.1 The term "Guarantee To Repair Period" means a period of 1 year, unless a longer period of time is specified, commencing as follows:

- .1 For any Work not described as incomplete in the Certificate of Substantial Completion, on the date of Substantial Completion.
- .2 For space beneficially occupied or for separate systems fully utilized prior to Substantial Completion pursuant to Article 9.6, from the first date of such Beneficial Occupancy or actual use, as established in a Certificate of Beneficial Occupancy.
- .3 For all Work other than .1 or .2 above, from the date of Final Completion.

12.2.2 Contractor shall (1) correct Defective Work that becomes apparent during the progress of the Work or during the Guarantee To Repair Period and (2) replace, repair, or restore to District's satisfaction any other parts of the Work and any other real or personal property which is damaged or destroyed as a result of Defective Work or the correction of Defective Work. Contractor shall promptly commence such correction, replacement, repair, or restoration upon notice from District's Representative or District, but in no case later than 10 days after receipt of such notice; and Contractor shall diligently and continuously prosecute such correction to completion. Contractor shall bear all costs of such correction, replacement, repair, or restoration, and all losses resulting from such Defective Work, including additional testing, inspection, and compensation for District's Representative's services and expenses. Contractor shall perform corrective Work at such times that are acceptable to District and in such a manner as to avoid, to the extent practicable, disruption to District's activities.

12.2.3 If immediate correction of Defective Work is required for life safety or the protection of property and is performed by District or Separate Contractors, Contractor shall pay to District all reasonable costs of correcting such Defective Work. Contractor shall replace, repair, or restore to

District's satisfaction any other parts of the Work and any other real or personal property which is damaged or destroyed as a result of such Defective Work or the correction of such Defective Work.

12.2.4 Contractor shall remove from the Project site portions of the Work and materials which are not in accordance with the Contract Documents and which are neither corrected by Contractor nor accepted by District.

12.2.5 If Contractor fails to commence correction of Defective Work within 10 days after notice from District or District's Representative or fails to diligently prosecute such correction to completion, District may correct the Defective Work in accordance with Article 2.4; and, in addition, District may remove the Defective Work and store salvageable materials and equipment at Contractor's expense.

12.2.6 If Contractor fails to pay the costs of such removal and storage as required by Articles 12.2.4 and 12.2.5 within 10 days after written demand, District may, without prejudice to other remedies, sell such materials at auction or at private sale, or otherwise dispose of such material. Contractor shall be entitled to the proceeds of such sale, if any, in excess of the costs and damages for which Contractor is liable to District, including compensation for District's Representative's services and expenses. If such proceeds of sale do not cover costs and damages for which Contractor is liable to District, the Contract Sum shall be reduced by such deficiency. If there are no remaining payments due Contractor or the remaining payments are insufficient to cover such deficiency, Contractor shall promptly pay the difference to District.

12.2.7 Contractor's obligations under this Article 12 are in addition to and not in limitation of its warranty under Article 3.4 or any other obligation of Contractor under the Contract Documents. Enforcement of Contractor's express warranties and guarantees to repair contained in the Contract Documents shall be in addition to and not in limitation of any other rights or remedies District may have under the Contract Documents or at law or in equity for Defective Work. Nothing contained in this Article 12 shall be construed to establish a period of limitation with respect to other obligations of Contractor under the Contract Documents. Establishment of the Guarantee To Repair Period relates only to the specific obligation of Contractor to correct the Work and in no way limits either Contractor's liability for Defective Work or the time within which proceedings may be commenced to enforce Contractor's obligations under the Contract Documents.

END OF ARTICLE 12

ARTICLE 13

TERMINATION OR SUSPENSION OF THE CONTRACT

13.1 TERMINATION BY CONTRACTOR

13.1.1 Subject to Article 13.1.2, Contractor shall have the right to terminate the Contract only upon the occurrence of one of the following:

- .1 Provided that District has not commenced reasonable action to remove any order of a court within the 90 day period, the Work is stopped for 90 consecutive days, through no act or fault of Contractor, any Subcontractor, or any employee or agent of Contractor or any Subcontractor, due to an issuance of an order of a court or other public authority having jurisdiction or due to an act of government, such as a declaration of a national emergency making material unavailable.
- .2 District fails to perform any material obligation under the Contract and fails to cure such default within 30 days, or District has not commenced to cure such default within 30 days where such cure will require a reasonable period beyond 30 days and diligently prosecutes the same to completion, after receipt of notice from Contractor stating the nature of such default(s).
- .3 Repeated suspensions by District, other than such suspensions as are agreed to by Contractor under Article 13.3, which constitute in the aggregate more than 20% of the Contract Time.

13.1.2 Upon the occurrence of one of the events listed in Article 13.1.1, Contractor may, upon 10 days additional notice to District and District's Representative, and provided that the condition giving rise to Contractor's right to terminate is continuing, terminate the Contract.

13.1.3 Upon termination by Contractor, District will pay to Contractor the sum determined by Article 13.4.4. Such payment will be the sole and exclusive remedy to which Contractor is entitled in the event of termination of the Contract by Contractor pursuant to Article 13.1; and Contractor will be entitled to no other compensation or damages and expressly waives the same.

13.2 TERMINATION BY DISTRICT FOR CAUSE

13.2.1 District will have the right to terminate the Contract for cause at any time after the occurrence of any of the following events:

- .1 Contractor becomes insolvent or files for relief under the bankruptcy laws of the United States.
- .2 Contractor makes a general assignment for the benefit of its creditors or fails to pay its debts as the same become due.
- .3 A receiver is appointed to take charge of Contractor's property.
- .4 The commencement or completion of any Work activity on the critical path is more than 30 days behind the date set forth in the Contract Schedule for such Work activity, as a result of an Unexcusable Delay. For a Contract with a Contract Time of less than 300 days, the 30-day period shall be reduced to the number of days commensurate with 10% of the Contract Time.
- .5 Contractor abandons the Work.

13.2.2 Upon the occurrence of any of the following events, District will have the right to terminate the Contract for cause if Contractor fails to promptly commence to cure such default and diligently prosecute such cure within 5 days after notice from District, or within such longer period of time as is reasonably necessary to complete such cure:

- .1 Contractor persistently or repeatedly refuses or fails to supply skilled supervisory personnel, an adequate number of properly skilled workers, proper materials, or necessary equipment to prosecute the Work in accordance with the Contract Documents.
- .2 Contractor fails to make prompt payment of amounts properly due Subcontractors after receiving payment from District.
- .3 Contractor disregards Applicable Code Requirements.
- .4 Contractor persistently or materially fails to execute the Work in accordance with the Contract Documents.
- .5 Contractor is in default of any other material obligation under the Contract Documents.
- .6 Contractor persistently or materially fails to comply with applicable safety requirements.

13.2.3 Upon any of the occurrences referred to in Articles 13.2.1 and 13.2.2, District may, at its election and by notice to Contractor, terminate the Contract and take possession of the Project site and all materials, supplies, equipment, tools, and construction equipment and machinery thereon owned by Contractor; accept the assignment of any or all of the subcontracts; and then complete the Work by any method District may deem expedient. If requested by District, Contractor shall remove any part or all of Contractor's materials, supplies, equipment, tools, and construction equipment and machinery from the Project site within 7 days of such request; and if Contractor fails to do so, District may remove or store, and after 90 days sell, any of the same at Contractor's expense.

13.2.4 If the Contract is terminated by District as provided in this Article 13.2, Contractor shall not be entitled to receive any further payment until the expiration of 35 days after Final Completion and acceptance of all Work by District.

13.2.5 If the unpaid balance of the Contract Sum exceeds the cost of completing the Work, including all additional costs and expenses made necessary thereby, including costs for District staff time, plus all losses sustained, including any liquidated damages provided under the Contract Documents, such excess shall be paid to Contractor. If such costs, expenses, losses, and liquidated damages exceed the unpaid balance of the Contract Sum, Contractor shall pay such excess to District.

13.2.6 No termination or action taken by District after termination shall prejudice any other rights or remedies of District provided by law or by the Contract Documents upon such termination; and District may proceed against Contractor to recover all losses suffered by District.

13.3 SUSPENSION BY DISTRICT FOR CONVENIENCE

13.3.1 District may, at any time and from time to time, without cause, order Contractor, in writing, to suspend, delay, or interrupt the Work in whole or in part for such period of time, up to 90 days, as District may determine, with such period of suspension to be computed from the date of delivery of the written order. Such order shall be specifically identified as a "Suspension Order" under this Article 13.3. The Work may be stopped for such further period as the parties may agree. Upon receipt of a Suspension Order, Contractor shall, at District's expense, comply with its terms and take all reasonable steps to minimize costs allocable to the Work covered by the Suspension Order during the period of Work stoppage. Within 90 days after the issuance of the Suspension Order, or such extension to that period as

is agreed upon by Contractor and District, District shall either cancel the Suspension Order or delete the Work covered by such Suspension Order by issuing a Change Order.

13.3.2 If a Suspension Order is canceled or expires, Contractor shall continue with the Work. A Change Order will be issued to cover any adjustments of the Contract Sum or the Contract Time necessarily caused by such suspension. Any Claim by Contractor for an adjustment of the Contract Sum or the Contract Time shall be made within 21 days after the end of the Work suspension. Contractor agrees that submission of its claim within said 21 days is an express condition precedent to its right to Arbitrate or Litigate such a claim.

13.3.3 The provisions of this Article 13.3 shall not apply if a Suspension Order is not issued by District. A Suspension Order shall not be required to stop the Work as permitted or required under any other provision of the Contract Documents.

13.4 TERMINATION BY DISTRICT FOR CONVENIENCE

13.4.1 District may, at its option, terminate this Contract, in whole or from time to time in part, at any time by giving notice to Contractor. Upon such termination, Contractor agrees to waive any claims for damages, including loss of anticipated profits, on account thereof; and, as the sole right and remedy of Contractor, District will pay Contractor in accordance with Article 13.4.4.

13.4.2 Upon receipt of notice of termination under this Article 13.4, Contractor shall, unless the notice directs otherwise, do the following:

- .1 Immediately discontinue the Work to the extent specified in the notice.
- .2 Place no further orders or subcontracts for materials, equipment, services, or facilities, except as may be necessary for completion of such portion of the Work as is not discontinued.
- .3 Promptly cancel, on the most favorable terms reasonably possible, all subcontracts to the extent they relate to the performance of the discontinued portion of the Work.
- .4 Thereafter do only such Work as may be necessary to preserve and protect Work already in progress and to protect materials, plants, and equipment on the Project site or in transit thereto.

13.4.3 Upon such termination, the obligations of the Contract shall continue as to portions of the Work already performed and, subject to Contractor's obligations under Article 13.4.2, as to bona fide obligations assumed by Contractor prior to the date of termination.

13.4.4 Upon such termination, District will pay to Contractor the sum of the following:

- .1 The amount of the Contract Sum allocable to the portion of the Work properly performed by Contractor as of the date of termination, less sums previously paid to Contractor.
- .2 Plus an amount equal to the lesser of \$50,000 or 5% of the difference between the Contract Sum and the amount of the Contract Sum allocable to the portion of the Work properly performed by Contractor as of the date of termination.
- .3 Plus previously unpaid costs of any items delivered to the Project site which were fabricated for subsequent incorporation in the Work.

- .4 Plus any proven losses with respect to materials and equipment directly resulting from such termination.
- .5 Plus reasonable demobilization costs.
- .6 Plus reasonable costs of preparing a statement of the aforesaid costs, expenses, and losses in connection with such termination.

The above payment shall be the sole and exclusive remedy to which Contractor is entitled in the event of termination of the Contract by District pursuant to Article 13.4; and Contractor will be entitled to no other compensation or damages and expressly waives same.

END OF ARTICLE 13

ARTICLE 14

STATUTORY AND OTHER REQUIREMENTS

14.1 NOT USED

14.2 NONDISCRIMINATION

14.2.1 For purposes of this Article 14.2, the term Subcontractor shall not include suppliers, manufacturers, or distributors.

14.2.2 Contractor shall comply and shall ensure that all Subcontractors comply with Section 12900 through 12996, of the State of California Government Code.

14.2.3 Contractor agrees as follows during the performance of the Work:

- .1 Contractor shall provide equal treatment to, and shall not willfully discriminate against or allow harassment of any employee or applicant for employment on the basis of: race; color; religion; sex; age; ancestry; national origin; sexual orientation; physical or mental disability; veteran's status; medical condition (as defined in Section 12926 of the State of California Government Code and including cancer-related medical conditions and or genetic characteristics); genetic information (as defined in the Genetic Information Nondiscrimination Act of 2008 and including family medical history); marital status; gender identity, pregnancy, or citizenship (within the limits imposed by law or District's policy) or service in the uniformed services (as defined by the Uniformed Services Employment and Reemployment Rights Act of 1994). Contractor will also take affirmative action to ensure that any such employee or applicant for employment is not discriminated against on any of the bases identified above. Such equal treatment shall apply, but not be limited to the following: employment; upgrade; demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor also agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that qualified applicants will receive consideration for employment without regard to: race; color; religion; sex; age; ancestry; national origin; sexual orientation; physical or mental disability; veteran's status; medical condition (as defined in Section 12926 of the State of California Government Code and including cancer-related medical conditions and or genetic characteristics); genetic information (as defined in the Genetic Information Nondiscrimination Act of 2008 and including family medical history); marital status; gender identity, pregnancy, or citizenship (within the limits imposed by law or District's policy) or service in the uniformed services (as defined by the Uniformed Services Employment and Reemployment Rights Act of 1994). For purposes of this provision: (1) "Pregnancy" includes pregnancy, childbirth, and medical conditions related to pregnancy and childbirth; and (2) "Service in the uniformed services" includes membership, application for membership, performance of service, application for service, or obligation for service in the uniformed services.

- .2 Contractor and all Subcontractors shall permit access to their records of employment, employment advertisements, application forms, and other pertinent data and records by District or any appropriate agency of the State of California designated by District for the purposes of investigation to ascertain compliance with this Article 14.2. The outcome of the investigation may result in the following:
 - .1 A finding of willful violation of the provisions of this Contract or of the Fair Employment Practices Act may be regarded by District as (1) a basis for determining that Contractor is not a “responsible bidder” as to future contracts for which such Contractor may submit bids or (2) a basis for refusing to accept or consider the bids of Contractor for future contracts.
 - .2 District may deem a finding of willful violation of the Fair Employment Practices Act to have occurred upon receipt of written notice from the Fair Employment Practices Commission that it has (1) investigated and determined that Contractor has violated the Fair Employment Practices Act and (2) issued an order under the State of California Government Code Section 12970 or obtained an injunction under Government Code Section 12973.
 - .3 Upon receipt of such written notice from the Fair Employment Practices Commission, District may notify Contractor that, unless it demonstrates to the satisfaction of District within a stated period that the violation has been corrected, Contractor's bids on future projects will not be considered.
 - .4 Contractor agrees that, should District determine that Contractor has not complied with this Article 14.2, Contractor shall forfeit to District, as a penalty, for each day or portion thereof, for each person who was denied employment as a result of such non-compliance, the penalties provided in Article 14.3 for violation of prevailing wage rates. Such penalty amounts may be recovered from Contractor; and District may deduct any such penalty amounts from the Contract Sum.
 - .5 Nothing contained in this Article 14.2 shall be construed in any manner so as to prevent District from pursuing any other remedies that may be available at law.
 - .6 Contractor shall meet the following standards for compliance and provide District with satisfactory evidence of such compliance upon District’s request, which shall be evaluated in each case by District:
 - .1 Contractor shall notify its Superintendent and other supervisory personnel of the nondiscrimination requirements of the Contract Documents and their responsibilities thereto.
 - .2 Contractor shall notify all sources of employee referrals (including unions, employment agencies, and the State of California Department of Employment) of the nondiscrimination requirements of the Contract Documents by sending to such sources.
 - .3 Contractor or its representative shall, through all unions with whom it may have agreements, develop agreements that (1) define responsibilities for nondiscrimination in hiring, referrals, upgrading, and training and (2) implement an affirmative nondiscrimination program, in terms of the unions' specific areas of skill and geography, such that qualified minority women, non-minority women, and minority men shall be available and given an equal opportunity for employment.

- .4 Contractor shall notify District of opposition to the nondiscrimination requirements of the Contract Documents by individuals, firms, or organizations during the term of the Contract.
- .7 Contractor shall include the provisions of the foregoing Articles 14.2.3.2.1 through 14.2.3.2.6 in all subcontracts with Subcontractors, so that such provisions will be binding upon each such Subcontractor.

14.3 PREVAILING WAGE RATES

14.3.1 For purposes of this Article 14.3, the term Subcontractor shall not include suppliers, manufacturers, or distributors.

14.3.2 Contractor shall comply and shall ensure that all Subcontractors comply with Sections 1770, 1771, 1772, 1773, 1774, and 1775 of the State of California Labor Code. Compliance with these sections is required by this Contract.

14.3.3 The State of California Department of Industrial Relations has ascertained the general prevailing per diem wage rates in the locality in which the Work is to be performed for each craft, classification, or type of worker required to perform the Work. A copy of the general prevailing per diem wage rates will be on file at District's principal facility office and will be made available to any interested party upon request. Contractor shall post a copy of the general prevailing per diem wage rates at the job site. By this reference, such schedule is made part of the Contract Documents. Contractor shall pay not less than the prevailing wage rates, as specified in the schedule and any amendments thereto, to all workers employed by Contractor in the execution of the Work. Contractor shall cause all subcontracts to include the provision that all Subcontractors shall pay not less than the prevailing rates to all workers employed by such Subcontractors in the execution of the Work. Contractor shall forfeit to District, as a penalty, not more than **\$200** for each calendar day or portion thereof for each worker that is paid less than the prevailing rates as determined by the Director of Industrial Relations for the work or craft in which the worker is employed for any portion of the Work done by Contractor or any Subcontractor. The amount of this penalty shall be determined pursuant to applicable law. Such forfeiture amounts may be deducted from the Contract Sum or sought directly from the surety under its Performance Bond if there are insufficient funds remaining in the Contract Sum. Contractor shall also pay to any worker who was paid less than the prevailing wage rate for the work or craft for which the worker was employed for any portion of the Work, for each day, or portion thereof, for which the worker was paid less than the specified prevailing per diem wage rate, an amount equal to the difference between the specified prevailing per diem wage rate and the amount which was paid to the worker. Review of any civil wage and penalty assessment shall be made pursuant to section **1742** of the California Labor Code.

14.4 PAYROLL RECORDS

14.4.1 For purposes of this Article 14.4, the term Subcontractor shall not include suppliers, manufacturers, or distributors.

14.4.2 Contractor and all Subcontractors shall keep an accurate payroll record, showing the name, address, social security number, job classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyworker, apprentice, worker, or other

employee employed in connection with the Work. All payroll records shall be certified as being true and correct by Contractor or Subcontractors keeping such records; and the payroll records shall be available for inspection at all reasonable hours at the principal office of Contractor on the following basis:

- .1 A certified copy of an employee's payroll record shall be made available for inspection or furnished to such employee or the employee's authorized representative on request.
- .2 A certified copy of all payroll records shall be made available for inspection upon request to District, the State of California Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the State of California Division of Industrial Relations.
- .3 A certified copy of all payroll records shall be made available upon request by the public for inspection or copies thereof made; provided, however, that the request by the public shall be made to either District, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. The public shall not be given access to such records at the principal offices of Contractor or Subcontractors. Any copy of the records made available for inspection as copies and furnished upon request to the public or any public agency by District shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address, and social security number. The name and address of Contractor awarded the Contract or performing the Contract shall not be marked or obliterated.

14.4.3 Contractor shall file a certified copy of the payroll records with the entity that requested the records within 10 days after receipt of a written request. Contractor shall inform District of the location of such payroll records for the Project, including the street address, city, and county; and Contractor shall, within 5 working days, provide notice of change of location of such records. In the event of noncompliance with the requirements of this Article 14.4 or with the State of California Labor Code Section 1776, Contractor shall have 10 days in which to comply following receipt of notice specifying in what respects Contractor must comply. Should noncompliance still be evident after the 10 day period, Contractor shall forfeit to District, as a penalty, **\$100** for each day, or portion thereof, for each worker, until strict compliance is accomplished. Such forfeiture amounts may be deducted from the Contract Sum.

14.5 APPRENTICES

14.5.1 For purposes of this Article 14.5, the term Subcontractor shall not include suppliers, manufacturers, and distributors.

14.5.2 Only apprentices, as defined in the State of California Labor Code Section 3077, who are in training under apprenticeship standards and written apprentice agreements under Chapter 4, Division 3, of the State of California Labor Code, are eligible to be employed by Contractor and Subcontractors as apprentices. The employment and training of each apprentice shall be in accordance with the provisions of the apprenticeship standards and written apprentice agreements under which the apprentice is training.

14.5.3 Every apprentice shall be paid the standard wage to apprentices, under the regulations of the craft or trade at which the apprentice is employed, and shall be employed only at the Work in the craft or trade to which the apprentice is indentured.

14.5.4 When Contractor or Subcontractors employ workers in any apprenticeship craft or trade on the Work, Contractor or Subcontractors shall 1) send contract award information to the applicable joint apprenticeship committee that can supply apprentices to the site of the public work and 2) apply to the joint apprenticeship committee, which administers the apprenticeship standards of the craft or trade in the area of the Project site, for a certificate approving Contractor or Subcontractors under the apprenticeship standards for the employment and training of apprentices in the area of the Project site. The committee will issue a certificate fixing the number of apprentices or the ratio of apprentices to journeypersons who shall be employed in the craft or trade on the Work. The ratio will not exceed that stipulated in the apprenticeship standards under which the joint apprenticeship committee operates; but in no case shall the ratio be less than 1 hour of apprentice work for every 5 hours of journeyman work, except as permitted by law. Contractor or Subcontractors shall, upon the issuance of the approval certificate in each such craft or trade, employ the number of apprentices or the ratio of apprentices to journeypersons fixed in the certificate issued by the joint apprenticeship committee or present an exemption certificate issued by the Division of Apprenticeship Standards.

14.5.5 “Apprenticeship craft or trade,” as used in this Article 14.5, shall mean a craft or trade determined as an apprenticeship occupation in accordance with rules and regulations prescribed by the Apprenticeship Council.

14.5.6 If Contractor or Subcontractors employ journeyworkers or apprentices in any apprenticeship craft or trade in the area of the Project site, and there exists a fund for assisting to allay the cost of the apprenticeship program in the trade or craft, to which fund or funds other contractors in the area of the Project site are contributing, Contractor and Subcontractors shall contribute to the fund or funds in each craft or trade in which they employ journeyworkers or apprentices on the Work in the same amount or upon the same basis and in the same manner done by the other contractors. Contractor may include the amount of such contributions in computing its bid for the Contract; but if Contractor fails to do so, it shall not be entitled to any additional compensation therefor from District.

14.5.7 In the event Contractor willfully fails to comply with this Article 14.5, it will be considered in violation of the requirements of the Contract.

14.5.8 Nothing contained herein shall be considered or interpreted as prohibiting or preventing the hiring by Contractor or Subcontractors of journeyworker trainees who may receive on-the-job training to enable them to achieve journeyworker status in any craft or trade under standards other than those set forth for apprentices.

14.6 WORK DAY

14.6.1 Contractor shall not permit any worker to labor more than 8 hours during any 1 day or more than 40 hours during any 1 calendar week, except as permitted by law and in such cases only upon such conditions as are provided by law. Contractor shall forfeit to District, as a penalty, \$25 for each worker employed in the execution of this Contract by Contractor, or any Subcontractor, for each day during which such worker is required or permitted to work more than 8 hours in any 1 day and 40 hours in any 1 calendar week in violation of the terms of this Article 14.6 or in violation of the provisions of any law of the State of California. Such forfeiture amounts may be deducted from the Contract Sum. Contractor and each Subcontractor shall keep, or cause to be kept, an accurate record showing the actual hours worked each day and each calendar week by each worker employed on the Project, which record shall

be kept open at all reasonable hours to the inspection of District, its officers and agents, and to the inspection of the appropriate enforcement agency of the State of California.

END OF ARTICLE 14

ARTICLE 15

MISCELLANEOUS PROVISIONS

15.1 GOVERNING LAW

15.1.1 The Contract shall be governed by the law of the State of California.

15.2 SUCCESSORS AND ASSIGNS

15.2.1 District and Contractor respectively bind themselves and their successors, permitted assigns, and legal representatives to the other party and to the successors, permitted assigns, and legal representatives of such other party in respect to covenants, agreements, and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract, in whole or in part, without prior written consent of the other party. Notwithstanding any such assignment, each of the original contracting parties shall remain legally responsible for all of its obligations under the Contract.

15.3 RIGHTS AND REMEDIES

15.3.1 All District's rights and remedies under the Contract Documents will be cumulative and in addition to and not in limitation of all other rights and remedies of District under the Contract Documents or otherwise available at law or in equity.

15.3.2 No action or failure to act by District or District's Representative will constitute a waiver of a right afforded them under the Contract, nor will such action or failure to act constitute approval of or acquiescence in a condition or breach thereunder, except as may be specifically agreed in writing. No waiver by District or District's Representative of any condition, breach or default will constitute a waiver of any other condition, breach or default; nor will any such waiver constitute a continuing waiver.

15.3.3 No provision contained in the Contract Documents shall create or give to third parties any claim or right of action against District, District's Representative, or Contractor.

15.4 SURVIVAL

15.4.1 The provisions of the Contract which by their nature survive termination of the Contract or Final Completion, including all warranties, indemnities, payment obligations, and District's right to audit Contractor's books and records, shall remain in full force and effect after Final Completion or any termination of the Contract.

15.5 COMPLETE AGREEMENT

15.5.1 The Contract Documents constitute the full and complete understanding of the parties and supersede any previous agreements or understandings, oral or written, with respect to the subject matter hereof. The Contract may be modified only by a written instrument signed by both parties or as provided in Article 7.

15.6 SEVERABILITY OF PROVISIONS

15.6.1 If any one or more of the provisions contained in the Contract Documents should be invalid, illegal, or unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions contained herein shall not in any way be affected or impaired thereby.

15.7 DISTRICT'S RIGHT TO AUDIT

15.7.1 District and entities and agencies designated by District will have access to and the right to audit and the right to copy at District's cost all of Contractor's books, records, contracts, correspondence, instructions, drawings, receipts, vouchers, purchase orders, and memoranda relating to the Work. Contractor shall preserve all such records and other items during the performance of the Contract and for a period of at least 3 years after Final Completion.

15.8 METHODS OF DELIVERY FOR SPECIFIED DOCUMENTS

15.8.1 The following documents must be delivered in a manner specified in Article 15.8.2:

- .1 Contractor Notices of election to litigate or arbitrate;
- .2 Written demand for a final decision by District's Representative pursuant to Article 4.2.5;
- .3 Contractor claims pursuant to Article 4.3;
- .4 Contractor notices of conditions pursuant to Articles 3.17, 3.18, or 3.19;
- .5 District's notices of Contractor's failure to perform and/or correct defective work pursuant to Articles 4.1.6, 12.2 and 13.2.3;
- .6 District's notice to stop work pursuant to Article 2.3.1;
- .7 Notices of termination or suspension pursuant to Article 13.

15.8.2 Delivery methods for documents specified in Article 15.8.1:

- .1 By personal delivery.
- .2 Sent by facsimile copy where receipt is confirmed.
- .3 Sent by Express Mail, or another method of delivery providing for overnight delivery where receipt is confirmed.
- .4 Sent by registered or certified mail, postage prepaid, return receipt requested.

15.8.3 The documents identified in Article 15.8.1 shall only be effective if delivered in the manner specified in Article 15.8.2. Subject to the forgoing, such documents shall be deemed given and received upon actual receipt in the case of all except registered or certified mail; and in the case of registered or certified mail, on the date shown on the return receipt or the date delivery during normal business hours was attempted. Delivery of the specified documents shall be made at the respective street addresses set forth in the Agreement. Such street addresses may be changed by notice given in accordance with this Article 15.8.

15.9 TIME OF THE ESSENCE

15.9.1 Time limits stated in the Contract Documents are of the essence of the Contract.

15.10 MUTUAL DUTY TO MITIGATE

15.10.1 District and Contractor shall use all reasonable and economically practicable efforts to mitigate delays and damages to the Project and to one another with respect to the Project, regardless of the cause of such delay or damage.

END OF ARTICLE 15

END OF GENERAL CONDITIONS

SUPPLEMENTARY CONDITIONS

1. CHANGES TO GENERAL CONDITIONS

District has added the following text in a box: “See Supplementary Conditions” throughout the General Conditions wherever there is a change in the General Conditions. This text is provided as a convenience to the Contractor. If the District inadvertently failed to include the “text in the box” notifying of the change, this does not relieve the Contractor of the responsibility of undertaking a complete review of the document to determine all the changes.

2. MODIFICATION OF GENERAL CONDITIONS, ARTICLE 8 – CONTRACT TIME

Adverse weather in excess of the following number of days will be granted a Contract Time extension pursuant to Article 8.4 of the General Conditions:

January - 6 days

February - 5 days

March - 5 days

April - 2 days

May - 1 day

June - 0 days

July - 0 days

August - 0 days

September - 0 days

October - 1 day

November - 4 days

December - 5 days

OR

Total Number of days – 29 days

END OF SUPPLEMENTARY CONDITIONS

SECTION 011000 – SUMMARY OF WORK**PART 1 GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Contract description.
- B. Contract method.
- C. Contractor use of site and premises.
- D. Owner occupancy.
- E. Miscellaneous requirements.

1.3 CONTRACT DESCRIPTION

- A. Project Identification: Kingsburg High School Proposed Ag Shop Canopy.
 - 1. Project Location: Kingsburg High School, 1900 18th Avenue, Kingsburg, California 93631.
- B. The work consists of the following:
 - 1. The project consists of a proposed new concrete apron and metal shade canopy totaling approximately 1,800 sq. ft. adjacent to the existing agricultural shop and classroom building.
 - 2. The proposed scope of work is generally divided into the following areas:
 - a. Demolition of existing concrete apron.
 - b. New concrete apron.
 - c. Shade canopy (metal building).
 - d. Minor barrier-removal upgrades at existing staff restrooms.
 - 3. The Work consists of a new shade canopy adjacent to an existing building, and includes limited site demolition, concrete pavement, concrete, steel metal building elements, sheet metal, metal fabrications, metal roofing, painting, plumbing, electrical, and interior finishes.
- C. Contractor shall provide and use all means necessary to ensure the physical work to be performed is within construction standards as set by General Safety Orders of Title 8; California Code of Regulations 1998 Edition, and as set by CAL-OSHA requirements, local, State and National Building, Mechanical and Electrical Codes, latest editions, and safety requirements for secondary structures.

- D. Existing Site Conditions: The Contractor shall make a thorough examination of the site to determine all existing conditions affecting the work. Site Examination will only be available during Pre-Construction Meeting/Site Visit. Contractors will not have access to site at any other time.

1.4 CONTRACT METHOD

- A. Construct the Work under a single Lump Sum Contract.

1.5 CONTRACTOR USE OF PREMISES

- A. General: Each Contractor shall have full use of premises for construction operations, including use of Project site, during construction period. Each Contractor's use of premises is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

1.6 OWNER'S OCCUPANCY REQUIREMENTS

- A. Owner Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed areas of building, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.
1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied before Owner occupancy.
 2. Obtain a Certificate of Occupancy from authorities having jurisdiction before Owner occupancy.
 3. Before partial Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of building.
 4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of building.

1.7 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 33-division format and CSI/CSC's "MasterFormat" numbering system.
1. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words “shall,” “shall be,” or “shall comply with,” depending on the context, are implied where a colon (:) is used within a sentence or phrase.

1.8 ENVIRONMENTAL MANAGEMENT

- A. Spills: Contractor shall be responsible to clean up all spills generated by equipment leaks or generated while Contractor is performing the work under this contract. Contractor will be required to provide drip catch pans for all equipment used that knowingly drips/leaks oils or other fluids. All spills generated shall be cleaned up by the Contractor and at no additional cost to the Owner.

1.9 DUST AND NOISE CONTROL

- A. Precaution shall be exercised at all times to control dust and excessive noise created as a result of any operations during the construction period.
- B. If serious problems and/or complaints arise due to airborne dust and excessive noise, and when directed by the Owner’s Representative, operations causing such problems shall be temporarily discontinued until a suitable remedy is established. The remedy shall be approved by the Owner before implementation, and shall be considered part of the Contractor’s normal effort to maintain safety and cleanliness without cause for further payment.

1.10 MATERIALS AND WORKMANSHIP

- A. Except as otherwise specified all materials and equipment incorporated in the work under the contract shall be new. All workmanship shall be first-class and by persons qualified in the respective trades.

1.11 ACCIDENT PREVENTION AND PROTECTION OF LIVES AND HEALTH

- A. Precaution shall be exercised at all times for the protection of all persons, including employees of the Contractor and the Owner, and property. Safety Provisions of Title 8, Chapter 4, "Division of Industrial Safety/Safety Orders" of the State of California; the California Building Code; and other applicable building and construction codes shall be observed. Machinery, equipment, openings, power lines, and all other hazards shall be guarded or eliminated in accordance with Safety Provisions of Title 8, and Manual of Accident Prevention in Construction published by the Associated General Contractors of America. Compliance to the provisions of the Williams-Steiger Occupational Safety & Health Act of 1970, which provides job safety and health protection for workers, is made a condition of the Contract.

1.12 UTILITIES

- A. Provide necessary protection to existing utility services and repair any work damaged as a result of operations of the Contract at no additional cost to the Owner.

1.13 PROTECTION OF EXISTING FACILITIES

- A. Damage to the adjoining properties shall be the responsibility of Contractor. Should damage occur, such facilities or property shall be restored to original condition, at no additional cost to the Owner.
- B. Housekeeping: The premises shall be kept in a clean, safe condition at all times. Rubbish shall be removed as fast as it accumulates, at a minimum, everyday.
- C. Burning: The use of burning at the project site for the disposal of refuse and debris will not be permitted.

1.14 MANUFACTURER'S INSTRUCTIONS

- A. Where required in the specifications that materials, products, processes, equipment or the like to be installed or applied in accordance with manufacturer's instructions, directions or specifications, or words to this effect, it shall be construed to mean that said application or installation shall be in strict accordance with printed instructions furnished by the manufacturer of the material concerned for use under conditions similar to those at the job site. Three copies of such instructions included with applicable submittal shall be furnished to the Architect and acceptance thereof obtained before work is begun.

1.15 RESPONSIBILITY FOR THEFT AND DAMAGE

- A. The Owner shall not be responsible for the loss or theft of the Contractor's tools, equipment and materials.

1.16 FIRE PROTECTION

- A. The Contractor shall at all times maintain good housekeeping practices to reduce the risk of fire damage. All scrap materials, rubbish and trash shall be removed daily and shall not be permitted to be scattered on the adjacent site.
- B. A fire extinguisher shall be available at each location where cutting or welding is being performed. Where electric or gas welding or cutting work is done, interposed shields of incombustible material shall be used to protect against fire damage due to sparks and hot metal.
- C. The Contractor shall provide fire extinguishers in accordance with the recommendations of NFPA Bulletins Nos. 10 and 241. However, in all cases a minimum of one fire extinguisher shall be available for use.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 012500 – SUBSTITUTION PROCEDURES**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitution requests made after award of Contract.
- B. Related Sections:
 - 1. Division 01 Section “Product Requirements” for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.
 - 3. Substitutions requested by bidders during the bidding period, and accepted by Addendum prior to award of the Contract, are considered as included in the Contract Documents.
 - 4. The Contractor after award of the Contract, as allowed by the General Conditions, may submit materials and methods to be considered for substitutions.
 - 5. The following are not considered to be substitutions:
 - a. Revisions to the Contract Documents requested by the Owner or Architect.
 - b. Specified options of products and construction methods included in the Contract Documents.
 - c. The Contractor’s compliance with governing regulations and orders issued by governing authorities.

1.4 SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Substitution Request Form: Use form provided at the end of this Section.
 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from California Code of Regulations, Title 24 (California Building Codes).
 - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
 - a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

- A. Coordination: Modify or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than 21 days prior to time required for preparation and review of related submittals.
 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible with other portions of the Work.
 - f. Requested substitution has been coordinated with other portions of the Work.
 - g. Requested substitution provides specified warranty.

- h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Not allowed.
- C. Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - b. Requested substitution does not require extensive revisions to the Contract Documents.
 - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - d. Substitution request is fully documented and properly submitted.
 - e. Requested substitution will not adversely affect Contractor's construction schedule.
 - f. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - g. Requested substitution is compatible with other portions of the Work.
 - h. Requested substitution has been coordinated with other portions of the Work.
 - i. Requested substitution provides specified warranty.
 - j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION



SUBSTITUTION REQUEST FORM

**FOR: Kingsburg High School Proposed Ag Shop Canopy
Kingsburg, California**

We hereby submit for your consideration the following product instead of the specified item for the above project:

SECTION	PARAGRAPH	SPECIFIED ITEM
_____	_____	_____

Proposed Substitution: _____

Attach complete technical data, including laboratory tests, if applicable.

Include complete information on changes to Drawings and/or Specifications which proposed substitution will require for its proposed installation.

Fill in the blanks below:

- A. Does the substitution affect dimension on Drawings:

- B. Will the undersigned pay for changes to the building design, including engineering and detailing costs caused by the requested substitution?

- C. What affect does substitution have on other trades?

- D. Difference between proposed substitution and specified item?

- E. Manufacturer's guarantees of the proposed and specified items are:
_____ Same _____ Different (explain on attachment)
- F. Cost difference between proposed substitution and specified item - savings to Owner?

The undersigned states that the function, appearance, and quality are equivalent or superior to the specified item and will be at no additional cost to the Owner.

Submitted to the Architect by:

Signature: _____
 Firm: _____
 Address: _____

 Date: _____
 Telephone: _____

For Use by Design Consultant

Accepted _____
 Accepted as Noted _____
 Not Accepted _____
 Received Too Late _____

By: _____

Date: _____

Remarks: _____

SECTION 012600 – CONTRACT MODIFICATION PROCEDURES**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
 - 1. Division 01 Section "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time on AIA Document G709. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.

- d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - e. Quotation Form: Use forms acceptable to Architect.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 4. Include costs of labor and supervision directly attributable to the change.
 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 6. Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
 7. Proposal Request Form: Use form acceptable to Architect.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 012900 – PAYMENT PROCEDURES**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections:
 - 1. Division 01 Section “Contract Modification Procedures” for administrative procedures for handling changes to the Contract.
 - 2. Division 01 Section “Construction Progress Documentation” for administrative requirements governing the preparation and submittal of the Contractor’s construction schedule.
 - 3. Division 01 Section “Submittals” for administrative requirements governing the preparation and submittal of the submittal schedule.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor’s construction schedule.
 - 1. Correlate line items in the schedule of values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with continuation sheets.
 - b. Submittal schedule.
 - c. Items required to be indicated as separate activities in Contractor’s construction schedule.

2. Submit the schedule of values to Architect at earliest possible date but no later than 7 days before the date scheduled for submittal of initial Applications for Payment.
 3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.
 4. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values correlated with each element.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 2. Arrange schedule of values consistent with format of AIA Document G703.
 3. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 - 1) Labor.
 - 2) Materials.
 - 3) Equipment.
 4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of 5 percent of Contract Sum.
 5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 6. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

- a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.
7. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
9. Purchase Contracts: Provide a separate line item in the schedule of values for each purchase contract. Show line-item value of purchase contract. Indicate owner payments or deposits, if any, and balance to be paid by Contractor.
10. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
11. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: Progress payments shall be submitted to Architect by the 15th day of each month. The period covered by each Application for Payment is one month, ending on the last day of the month.
- C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.

2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 3. Provide summary documentation for stored materials indicating the following:
 - a. Materials previously stored and included in previous Applications for Payment.
 - b. Work completed for this Application utilizing previously stored materials.
 - c. Additional materials stored with this Application.
 - d. Total materials remaining stored, including materials with this Application.
- F. Transmittal: Submit 4 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
- I. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
 3. Administrative actions and submittals that shall precede or coincide with this application include:
 - a. Warranties (guarantees) and maintenance agreements
 - b. Maintenance instructions
 - c. Final cleaning
 - d. Application for reduction of retainage and consent of surety
 - e. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.
- J. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Updated final statement, accounting for final changes to the Contract Sum.
 3. Evidence that claims have been settled.
 4. Completion of items specified for completion after Substantial Completion.
 5. Ensure that incomplete Work is not accepted and will be completed without undue delay.
 6. Transmittal of required Project construction records to Owner.
 7. Removal of temporary facilities and services.
 8. Removal of surplus materials, rubbish, and similar elements.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 013000 – SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including the following:
 - 1. Daily Construction Reports.
 - 2. Shop Drawings.
 - 3. Product Data.
 - 4. Samples.
- B. Administrative Submittals: Refer to other Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:
 - 1. Permits.
 - 2. Applications for Payment.
 - 3. Performance and payment bonds.
 - 4. Insurance certificates.
 - 5. List of subcontractors.
- C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 01 Section “Coordination.”

1.3 SUBMITTAL PROCEDURES

- A. Coordination: 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.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. 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.

- a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received. Incomplete submittals may be returned without review.
3. Processing: Allow sufficient time for submittal review, including time for resubmittals.
 - a. Allow 2 weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Architect will promptly advise the Contractor when a submittal being processed must be delayed for purposes of coordination.
 - b. If an intermediate submittal is necessary, process the same as the initial submittal.
 - c. Allow 2 weeks for reprocessing each submittal.
 - d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.
 - e. Submittals to be returned immediately with no action where a thorough review by the General Contractor is determined by the Architect to have not taken place.
- B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
1. Provide a space approximately 4 by 5 inches (100 by 125 mm) on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken. Submittals received which do not acknowledge the Contractor's review and approval will be returned without review.
 2. Include the following information on the label for processing and recording action taken.
 - a. Project name.
 - b. Date.
 - c. Name and address of the Architect.
 - d. Name and address of the Contractor.
 - e. Name and address of the subcontractor.
 - f. Name and address of the supplier.
 - g. Name of the manufacturer.
 - h. Number and title of appropriate Specification Section.
 - i. Drawing number and detail references, as appropriate.
- C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Architect using a transmittal form. Submittals received from sources other than the Contractor will be returned without action.

1. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.

D. Resubmittals:

1. Make resubmittals under procedures specified for initial submittals; clearly identify changes made since previous submittal.
2. The Architect/Engineer shall review the original submittal only as part of their contract. The costs of additional reviews by the Architect/Engineer required to gain approval of submittal items will be paid to the Architect/Engineer by the Owner as Additional Services.
 - a. The additional costs of resubmittal review will be deducted from the Contractor's subsequent Application for Payment by the Owner.

1.4 DAILY CONSTRUCTION REPORTS

- A. Prepare a daily construction report recording the following information concerning events at the site, and submit duplicate copies to the Architect at weekly intervals. Refer to Division 01 Section Construction Progress Documentation for required information.

1.5 SHOP DRAWINGS

- A. Submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.
- B. Shop Drawings include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawings. Include the following information:
 1. Dimensions.
 2. Identification of products and materials included.
 3. Compliance with specified standards.
 4. Notation of coordination requirements.
 5. Notation of dimensions established by field measurement.
 6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 24 by 36 inches
 7. Initial Submittal: Submit six black-line prints for the Architect's review. The Architect will return four prints. Electronic submittal may be approved by Architect.
 8. Resubmittal if Required: Repeat entirely the initial submittal, six black-line prints, corrected as required. The Owner will be invoiced by the Architect and his engineers for time and expense to review submittals for the same item in excess of three times. The Owner may deduct these charges from the Contractor's pay request.

- a. One of the prints returned shall be marked up and maintained as a "Record Document."
9. Do not use Shop Drawings without an appropriate final stamp indicating action taken.

1.6 PRODUCT DATA

- A. Present Product Data in a single submittal for each element of construction or system. As a minimum submit data for all products in each submittal section as a single submittal package; in some cases all product data for multiple specification sections may be required. Incomplete submittals will be returned without review. Product Data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.
 1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information. Include the following information:
 - a. Manufacturer's printed recommendations.
 - b. Compliance with trade association standards.
 - c. Compliance with recognized testing agency standards.
 - d. Application of testing agency labels and seals.
 - e. Notation of dimensions verified by field measurement.
 - f. Notation of coordination requirements.
 2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
 3. Submittals: Submit seven (7) copies of each required submittal. The Architect will retain two and will return the others marked with action taken and corrections or modifications required.
 - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
 4. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
 - a. Do not proceed with installation until an approved copy of applicable Product Data is in the Installer's possession.
 - b. Do not permit use of unmarked copies of Product Data in connection with construction.

1.7 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
1. Mount or display Samples in the manner to facilitate review of qualities indicated. Prepare Samples to match the Architect's sample. Include the following:
 - a. Generic description of the Sample.
 - b. Sample source.
 - c. Product name or name of the manufacturer.
 - d. Compliance with recognized standards.
 - e. Availability and delivery time.
 2. Submit Samples for review of size, kind, color, pattern, and texture. Submit Samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
 - a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least 3 multiple units that show approximate limits of the variations.
 - b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
 3. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation, and similar characteristics, submit 3 sets. The Architect will return one set marked with the action taken.
 4. Maintain sets of Samples, as returned, at the Project Site, for quality comparisons throughout the course of construction.
- B. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.
1. Field samples are full-size examples erected on-site to illustrate finishes, coatings, or finish materials and to establish the Project standard.
 - a. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

1.8 ARCHITECT'S ACTION

- A. Except for submittals for the record or information, where action and return is required, the Architect will review each submittal, mark to indicate action taken, and return promptly.

1. Compliance with specified characteristics is the Contractor's responsibility.
- B. Action Stamp: The Architect will stamp each submittal with an action stamp. The Architect will mark the stamp appropriately to indicate the action taken, as follows:
1. Final Unrestricted Release: Work may proceed, provided it complies with contract documents, when submittal is returned with the following:
 - a. Marking: "Reviewed"
 2. Final-But-Restricted Release: Work may proceed, provided written conformation is delivered to architect by contractor that installed work compiled with notations and corrections on submittal and with contract documents, when submittal is returned with the following:
 - a. Marking: "Furnish as Corrected"
 3. Returned for Resubmittal: Do not proceed with work. Revise submittal in accordance with notations thereon, and resubmit without delay to obtain a different action marking. Do not allow submittals with following marking (or unmarked submittals where a marking is required) to be used in connection with performance of Work:
 - a. Marking: "Revise and Resubmit"
 - b. Marking: "Rejected"
 4. Other Action: Where a submittal is for information or record purposes or special processing or other activity, the Architect will return the submittal marked "Action Not Required."
- C. Unsolicited Submittals: The Architect will return unsolicited submittals to the sender without action.

PART 2 – PRODUCTS

(Not Used)

PART 3 – EXECUTION

(Not Used)

END OF SECTION

SECTION 013100 – COORDINATION**PART 1 – GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and supervisory requirements necessary for coordinating construction operations including, but not necessarily limited to, the following:
 - 1. General project coordination procedures.
 - 2. Conservation.
 - 3. Coordination Drawings.
 - 4. Administrative and supervisory personnel.
 - 5. Cleaning and protection.
- B. Related Sections: Related sections include but are not limited to the following:
 - 1. Division 01 Section “Submittals.”
 - 2. Division 01 Section “Construction Progress Documentation.”
 - 3. Division 01 Section “Closeout Procedures.”

1.3 SUBMITTALS

- A. Coordination Drawings:
 - 1. Initial Submittal: Submit 3 printed copies of each coordination drawing for each condition where Coordination Drawings are required.
- B. Administrative and Supervisory Personnel: Within 15 days of starting construction operations, submit a list of Contractor’s key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including office and cellular telephone numbers, and email addresses.
 - 1. Post copy of list in temporary field office. Keep list current at all times.

1.4 COORDINATION

- A. Coordinate construction operations included in various sections of these specifications to assure efficient and orderly installation of each part of the work. Coordinate construction operations included under different sections that depend on each other for proper installation, connection, and operation. The contractor's coordination operations and requirements shall extend to work completed by others; including work to be completed as a part of other increments.
1. Schedule construction operations in the sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair.
 3. Make provisions to accommodate items scheduled for later installation.
 4. 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.
 5. Prepare similar memoranda for the Owner and separate contractors where coordination of their work is required.
- B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and assure 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.
- C. Conservation: Coordinate construction operations to assure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

PART 2 – PRODUCTS

2.1 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Coordination drawings shall be required to coordinate the work of multiple trades and where limited space availability necessitates coordination of clearances. Coordination Drawings shall include the work of multiple trades on the same drawing. Prepare Coordination Drawings in addition to Shop Drawings required in individual Sections.

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare plans, sections, elevations, and details as needed to describe relationship of various systems and components.
 - b. Coordinate trade-specific information in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
 - c. Indicate functional and spatial relationships of components of architectural, structural, civil, plumbing, mechanical, and electrical systems.
 - d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
 - e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
 - f. Indicate required installation sequences.
 - g. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

- B. Coordination Drawings, Required: Provide coordination drawings for the following conditions:
 1. Overhead Work and Work Above Finished Ceilings: Show the work of each trade including, but not limited to, pipe runs, mechanical ductwork, cable trays, conduit runs, and bracing and supports.
 - a. Indicate locations of all dampers, valves, cleanouts and other devices requiring human access for maintenance and repair. Where access panels are required, show locations and indicate size.
 - b. Show the height above finish floor for each item, demonstrating sufficient space for installation and maintenance. Indicate sizes of ducts, piping and similar items.
 - c. Layout of work shall be done in such a manner to avoid conflicts between the work of different trades, finish ceiling heights, soffits, light fixtures or other finish work at ceilings and soffits.
 - d. Should unavoidable conflicts occur that affect finish ceiling and soffit heights, methods of installations, methods of construction or means of accessibility, the contractor shall clearly identify each location for review by the Architect.

 2. Underground Site Utilities and Utilities Below Slabs on Grade within Building Areas: Where underground utilities cross other utilities, penetrate footings, underground structures or other obstructions; show the work of each trade that will be placed underground; include the following information:
 - a. Indicate sizes of utility piping and elevations below grade.

- b. Show footings and other underground structures; where unavoidable conflicts occur between underground structures/footings and utilities, indicate depths below grade and clearly identify locations for sleeving for review by Architect.
 3. Outdoor Service Yards and Indoor Equipment Rooms and Areas within Buildings: Show the work of each trade that is to occur above and/or below grade; include the following information:
 - a. Equipment: Show equipment and locations, utility connections, and working and service clearances.
 - b. Utilities: Show above and below grade utilities; indicate heights and below grade elevations, sizes of piping and conduit, dimensions between utilities and between utilities and other obstructions including concrete footings for other work. Show locations of all shut-off and isolation valves, cleanouts, filters, and other devices requiring human access for maintenance and repair.
 - c. Enclosures: Show limits of enclosure including walls, doors, fences, and gates; confirm door and gate access width for equipment.
 - d. Dimensions: Indicate dimensions as appropriate to insure adequate clearance will be provided for installation, service, and operation of equipment; include horizontal and vertical dimensions between utilities to insure clearance for installation of utilities. Include vertical dimension(s) of equipment and distances to overhead obstructions where applicable.
 4. Roof Mounted Equipment: Show the work for each trade that will be placed on the roof, include the following:
 - a. Show equipment locations and horizontal distances between equipment.
 - b. Show the locations of roof penetrations, indicate size of penetrations, and indicate the horizontal distance between penetrations and roof mounted equipment.
 - c. Identify the means and methods of supports being used for pipe and conduit runs.
 - d. Show all pipe and conduit runs for each trade.
 - e. Show the relationship between all roof mounted equipment and roof drainage features. Equipment shall be located so as to not obstruct roof drainage; provide at least 24 inches between equipment platforms and valleys formed by the intersection of roof planes and crickets.
- C. Preparation: Prepare coordination drawings electronically using same digital data software program, version, and operating system as the Architect's original Drawings; DWG files.
1. Submittal Format:
 - a. Electronic Format: Submit electronic drawing files using Portable Data File (PDF) format.
 - b. Printed Format: Submit plotted drawings on opaque bond paper of at least 8.5 inches by 11 inches and not larger than 24 inches by 36 inches.

2. Architect will furnish Contractor digital data files of base drawings as appropriate for use in preparing coordination digital data files.
 - a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to the Drawings.
 - b. Digital Data Software Program: The Drawings are available in DWG format.
 - c. Contractor shall execute the data licensing agreement in the form of an Agreement form acceptable to the Owner and Architect. See Division 01 Section Electronic Communications.

- D. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are the Contractor's responsibility. If the Architect determines that the coordination drawings are not prepared in sufficient scope or detail, or are otherwise deficient, the Architect will so inform the Contractor, who shall make changes as directed and resubmit.

PART 3 – EXECUTION

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

3.2 CLEANING AND PROTECTION

- A. Clean and protect construction in progress and adjoining materials in place, during handling and installation. Apply protective covering where required to assure protection from damage or deterioration at Substantial Completion.
- B. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period.
- C. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:
 1. Excessive static or dynamic loading.
 2. Excessive internal or external pressures.
 3. Excessively high or low temperatures.
 4. Thermal shock.
 5. Excessively high or low humidity.
 6. Air contamination or pollution.

7. Water or ice.
8. Solvents.
9. Chemicals.
10. Light.
11. Radiation.
12. Puncture.
13. Abrasion.
14. Heavy traffic.
15. Soiling, staining, and corrosion.
16. Bacteria.
17. Rodent and insect infestation.
18. Combustion.
19. Electrical current.
20. High-speed operation.
21. Improper lubrication.
22. Unusual wear or other misuse.
23. Contact between incompatible materials.
24. Destructive testing.
25. Misalignment.
26. Excessive weathering.
27. Unprotected storage.
28. Improper shipping or handling.
29. Theft.
30. Vandalism.

END OF SECTION

SECTION 013200 – CONSTRUCTION PROGRESS DOCUMENTATION**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Division 01 General Conditions, Pre-construction Meeting.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including the following:
 - 1. Contractor's construction schedule.
 - 2. Daily construction reports.
- B. Administrative Submittals: Refer to other Division 01 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:
 - 1. Permits.
 - 2. Applications for Payment.
 - 3. Performance and payment bonds.
 - 4. Insurance certificates.
 - 5. List of subcontractors.

1.3 DEFINITIONS

- A. Terms:
 - 1. Activity: A discreet, separate portion of the Work, which must be accomplished on or off site to achieve project completion. In planning and scheduling a construction project, the work to be done is separated into a number of interrelated but separate activities.
 - 2. Critical Path: That particular sequence of activities within a project schedule that, in total, determine the time required for project completion. Any activity, which lies upon the critical path, must be completed within its scheduled duration or the entire project will be delayed unless remedial measures are employed.
 - 3. CPM: Critical Path Method; That method of project scheduling employing a network of activities displaying interrelationships from which the critical path for the project may be determined.

4. Milestone: An activity, which occurs in an instant and thus has no time duration.
5. Precedence Network: A network planning and scheduling format where each activity is represented by a time-scaled bar. Interrelationships are shown by the lines connecting various time-scaled bars. An activity connected to, and to the right of, another activity cannot normally begin until the preceding activity has been completed.
6. Schedule: The project plan with activity durations, start and finish dates, notations, etc. superimposed on it.
7. Update: The generation of a new project schedule responsive to current information, revised interrelationships of activities, and/or revised estimates of activity durations.

1.4 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Prepare a fully developed contractor's construction schedule. Submit within 7 days after the building permit has been pulled.
 1. Note on the schedule each construction activity. Indicate for each activity and time duration.
 2. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.
 3. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence.
 4. Coordinate the Contractor's Construction Schedule with the list of subcontractors, Submittal Schedule, progress reports, payment requests, and other schedules.
 5. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Architect's procedures necessary for certification of Substantial Completion.
 7. Work Stages: Indicate important stages of construction for each major portion of the Work.
 8. Schedule Updating: Revise the schedule after each meeting, event, or activity where revisions have been recognized or made. Issue the updated schedule concurrently with each application for payment. Lack of an updated and current schedule is grounds for returning Application for Payment unreviewed.
 9. Submit the number of copies the Contractor requires plus 3 copies to be retained by the Architect.
 10. If the schedule indicates a work plan which will not deliver the program in accordance with the Contract time, indicate methods of reducing the plan by concurrency of the operations, reducing critical work spans, or a combination of both so that the schedule can reflect compliance with the Contract time.

11. The Contractor shall be responsible for the schedule content. He shall provide, in a timely and convenient fashion, all information regarding work operations, sequence of work, breakdown of the work into individual activities and time estimates for explanation of corrective action to be taken or proposed.
12. Progress Payments:
 - a. Monthly progress payments may be made, based on the total value of activities completed or partially completed, as determined by the Engineer, with participation of the Contractor and based upon the approved schedule of values.
 - b. If, according to the schedule, the Contractor is 14 calendar days or more behind schedule, he shall be responsible to submit a revised schedule which indicates methods of reducing the network plan by concurrency of operations, increased manpower, reducing critical work spans or a combination of both so that the Contractor's schedules reflect compliance with the Contract time. The Contractor's efforts to comply with the Contract time shall be at his own expense. At the Owner's option, progress payments may be withheld until an acceptable revised schedule is submitted by the Contractor and reviewed by the Architect.
13. All construction activities shall include time for inspection of materials after materials are installed.
14. If it appears that the original schedule cannot be achieved, additional corrective action shall be taken until the original schedule can be achieved or until all possible alternatives are exhausted.
15. The submission of an amended schedule will not relieve the Contractor of the responsibility to notify the Architect in writing of all anticipated potential delays in the prosecution of the Work.

1.5 DAILY CONSTRUCTION REPORTS

- A. Prepare a daily construction report for each of the project sites, recording the following information concerning events at the sites, and submit duplicate copies to the Architect at weekly intervals:
 1. List of subcontractors and visitors at the site.
 2. Approximate count of personnel at the site.
 3. Describe the work for that day including locations.
 4. List material and equipment received that day.
 5. List of nonconforming work, required rework and when such work is corrected.
 6. Description and location of work being performed related to personnel and building trades.
 7. High and low temperatures, general weather conditions.
 8. Accidents and unusual events.
 9. Meetings and significant decisions.
 10. Stoppages, delays, shortages, and losses.
 11. Work not conforming to the Contract Documents.

12. Meter readings and similar recordings.
13. Emergency procedures.
14. Orders and requests of governing authorities.
15. Change Orders received, implemented.
16. Services connected, disconnected.
17. Equipment or system tests and startups.
18. Partial Completions, occupancies.
19. Notice Completions authorized.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 014000 – QUALITY REQUIREMENTS**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Requirements:
 - 1. Divisions 02 through 33 Sections for specific test and inspection requirements.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

- C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
- D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
- E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.

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

1.5 ACTION SUBMITTALS

- A. Shop Drawings: For mockups, provide plans, sections, and elevations, indicating materials and size of mockup construction.
 - 1. Indicate manufacturer and model number of individual components.
 - 2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

1.6 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Qualification Data : For Contractor's quality-control personnel.
- C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:
- D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Entity responsible for performing tests and inspections.
 - 3. Description of test and inspection.
 - 4. Identification of applicable standards.
 - 5. Identification of test and inspection methods.
 - 6. Number of tests and inspections required.
 - 7. Time schedule or time span for tests and inspections.
 - 8. Requirements for obtaining samples.
 - 9. Unique characteristics of each quality-control service.

1.7 CONTRACTOR'S QUALITY-CONTROL PLAN

- A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.
- B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
 - 1. Project quality-control manager may also serve as Project Superintendent.
- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:
 - 1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
 - 2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
 - 3. Owner-performed tests and inspections indicated in the Contract Documents.
- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.8 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.

5. Names of individuals making tests and inspections.
 6. Description of the Work and test and inspection method.
 7. Identification of product and Specification Section.
 8. Complete test or inspection data.
 9. Test and inspection results and an interpretation of test results.
 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of technical representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of factory-authorized service representative making report.
 2. Statement that equipment complies with requirements.
 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 4. Statement whether conditions, products, and installation will affect warranty.
 5. Other required items indicated in individual Specification Sections.
- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.9 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
 - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

- I. **Factory-Authorized Service Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

- J. **Preconstruction Testing:** Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
 - e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
 - f. When testing is complete, remove test specimens, assemblies, and mockups; do not reuse products on Project.

 - 2. **Testing Agency Responsibilities:** Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

- K. **Mockups:** Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
 - 2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
 - 3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at Project.
 - 4. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 5. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
 - a. Allow seven days for initial review and each re-review of each mockup.

 - 6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

 - 7. Demolish and remove mockups when directed unless otherwise indicated.

1.10 QUALITY CONTROL

- A. **Owner Responsibilities:** Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
 3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. **Contractor Responsibilities:** Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. **Manufacturer's Field Services:** Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittals."
- D. **Manufacturer's Technical Services:** Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

- E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- F. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform any duties of Contractor.
- G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.

1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.11 SPECIAL TESTS AND INSPECTIONS

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Architect.
 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Division 01.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 014200 – REFERENCES**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

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

1.3 INDUSTRY STANDARDS

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

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association, Inc. (The) www.aluminum.org	(703) 358-2960
AAADM	American Association of Automatic Door Manufacturers www.aaadm.com	(216) 241-7333
AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AASHTO	American Association of State Highway and Transportation Officials www.transportation.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists www.aatcc.org	(919) 549-8141

ABAA	Air Barrier Association of America www.airbarrier.org	(866) 956-5888
ABMA	American Bearing Manufacturers Association www.abma-dc.org	(202) 367-1155
ACI	American Concrete Institute www.concrete.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530
AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGA	American Gas Association www.aga.org	(202) 824-7000
AGC	Associated General Contractors of America (The) www.agc.org	(703) 548-3118
AHA	American Hardboard Association (Now part of CPA)	
AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955
AI	Asphalt Institute www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Architects (The) www.aia.org	(800) 242-3837 (202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction www.aitc-glulam.org	(303) 792-9559
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)	
ALSC	American Lumber Standard Committee, Incorporated www.alsc.org	(301) 972-1700

AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
AOSA	Association of Official Seed Analysts, Inc. www.aosaseed.com	(405) 780-7372
APA	Architectural Precast Association www.archprecast.org	(239) 454-6989
APA	APA - The Engineered Wood Association www.apawood.org	(253) 565-6600
APA EWS	APA - The Engineered Wood Association; Engineered Wood Systems (See APA - The Engineered Wood Association)	
API	American Petroleum Institute www.api.org	(202) 682-8000
ARI	Air-Conditioning & Refrigeration Institute www.ari.org	(703) 524-8800
ARMA	Asphalt Roofing Manufacturers Association www.asphaltroofing.org	(202) 207-0917
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)	
ASHRAE	American Society of Heating, Refrigerating and Air- Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (973) 882-1170
ASSE	American Society of Sanitary Engineering www.asse-plumbing.org	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9500

AWCI	Association of the Wall and Ceiling Industry www.awci.org	(703) 534-8300
AWCMA	American Window Covering Manufacturers Association (Now WCMA)	
AWI	Architectural Woodwork Institute www.awinet.org	(571) 323-3636
AWPA	American Wood Protection Association (Formerly: American Wood Preservers' Association) www.awpa.com	(205) 733-4077
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 297-2122
BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010
BICSI	BICSI, Inc. www.bicsi.org	(800) 242-7405 (813) 979-1991
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International) www.bifma.com	(616) 285-3963
BISSC	Baking Industry Sanitation Standards Committee www.bissc.org	(866) 342-4772
BWF	Badminton World Federation (Formerly: IBF - International Badminton Federation) www.internationalbadminton.org	6-03-9283 7155
CCC	Carpet Cushion Council www.carpetcushion.org	(610) 527-3880
CDA	Copper Development Association www.copper.org	(800) 232-3282 (212) 251-7200
CEA	Canadian Electricity Association www.canelect.ca	(613) 230-9263

SECTION 014200 – REFERENCES

P DSA Project No. 02-118435

age 6 of 19

CEA	Consumer Electronics Association www.ce.org	(866) 858-1555 (703) 907-7600
CFFA	Chemical Fabrics & Film Association, Inc. www.chemicalfabricsandfilm.com	(216) 241-7333
CGA	Compressed Gas Association www.cganet.com	(703) 788-2700
CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583
CRRC	Cool Roof Rating Council www.coolroofs.org	(866) 465-2523 (510) 485-7175
CPA	Composite Panel Association www.pbmdf.com	(301) 670-0604
CPPA	Corrugated Polyethylene Pipe Association www.cppa-info.org	(800) 510-2772 (202) 462-9607
CRI	Carpet and Rug Institute (The) www.carpet-rug.com	(800) 882-8846 (706) 278-3176
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200
CSA	Canadian Standards Association	(800) 463-6727 (416) 747-4000
CSA	CSA International (Formerly: IAS - International Approval Services) www.csa-international.org	(866) 797-4272 (416) 747-4000
CSI	Cast Stone Institute www.caststone.org	(717) 272-3744
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
CSSB	Cedar Shake & Shingle Bureau	(604) 820-7700

	www.cedarbureau.org	
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute) www.cti.org	(281) 583-4087
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
EIA	Electronic Industries Alliance www.eia.org	(703) 907-7500
EIMA	EIFS Industry Members Association www.eima.com	(800) 294-3462 (770) 968-7945
EJCDC	Engineers Joint Contract Documents Committee www.ejdc.org	(703) 295-5000
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
ESD	ESD Association (Electrostatic Discharge Association) www.esda.org	(315) 339-6937
ETL SEMCO	Intertek ETL SEMCO (Formerly: ITS - Intertek Testing Service NA) www.intertek.com	(800) 967-5352
FIBA	Federation Internationale de Basketball (The International Basketball Federation) www.fiba.com	41 22 545 00 00
FIVB	Federation Internationale de Volleyball (The International Volleyball Federation) www.fivb.ch	41 21 345 35 35
FM Approvals	FM Approvals LLC www.fmglobal.com	(781) 762-4300
FM Global	FM Global (Formerly: FMG - FM Global) www.fmglobal.com	(401) 275-3000
FMRC	Factory Mutual Research (Now FM Global)	
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc. www.floridarooft.com	(407) 671-3772

FSA	Fluid Sealing Association www.fluidsealing.com	(610) 971-4850
FSC	Forest Stewardship Council www.fsc.org	49 228 367 66 0
GA	Gypsum Association www.gypsum.org	(202) 289-5440
GANA	Glass Association of North America www.glasswebsite.com	(785) 271-0208
GRI	(Part of GSI)	
GS	Green Seal www.greenseal.org	(202) 872-6400
GSI	Geosynthetic Institute www.geosynthetic-institute.org	(610) 522-8440
HI	Hydraulic Institute www.pumps.org	(973) 267-9700
HI	Hydronics Institute www.gamanet.org	(908) 464-8200
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)	
HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
HPW	H. P. White Laboratory, Inc. www.hpwhite.com	(410) 838-6550
IAS	International Approval Services (Now CSA International)	
IBF	International Badminton Federation (Now BWF)	
ICEA	Insulated Cable Engineers Association, Inc. www.icea.net	(770) 830-0369
ICRI	International Concrete Repair Institute, Inc. www.icri.org	(847) 827-0830
IEC	International Electrotechnical Commission www.iec.ch	41 22 919 02 11

IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) www.ieee.org	(212) 419-7900
IESNA	Illuminating Engineering Society of North America www.iesna.org	(212) 248-5000
IEST	Institute of Environmental Sciences and Technology www.iest.org	(847) 255-1561
IGCC	Insulating Glass Certification Council www.igcc.org	(315) 646-2234
IGMA	Insulating Glass Manufacturers Alliance www.igmaonline.org	(613) 233-1510
ILI	Indiana Limestone Institute of America, Inc. www.iliai.com	(812) 275-4426
ISO	International Organization for Standardization www.iso.ch	41 22 749 01 11
	Available from ANSI www.ansi.org	(202) 293-8020
ISSFA	International Solid Surface Fabricators Association www.issfa.net	(877) 464-7732 (702) 567-8150
ITS	Intertek Testing Service NA (Now ETL SEMCO)	
ITU	International Telecommunication Union www.itu.int/home	41 22 730 51 11
KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LMA	Laminating Materials Association (Now part of CPA)	
LPI	Lightning Protection Institute www.lightning.org	(800) 488-6864
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MFMA	Maple Flooring Manufacturers Association, Inc. www.maplefloor.org	(888) 480-9138
MFMA	Metal Framing Manufacturers Association, Inc.	(312) 644-6610

	www.metalframingmfg.org	
MH	Material Handling (Now MHIA)	
MHIA	Material Handling Industry of America www.mhia.org	(800) 345-1815 (704) 676-1190
MIA	Marble Institute of America www.marble-institute.com	(440) 250-9222
MPI	Master Painters Institute www.paintinfo.com	(888) 674-8937 (604) 298-7578
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc. www.mss-hq.com	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org	(630) 942-6591
NACE	NACE International (National Association of Corrosion Engineers International) www.nace.org	(800) 797-6623 (281) 228-6200
NADCA	National Air Duct Cleaners Association www.nadca.com	(202) 737-2926
NAGWS	National Association for Girls and Women in Sport www.aahperd.org/nagws/	(800) 213-7193, ext. 453
NAIMA	North American Insulation Manufacturers Association www.naima.org	(703) 684-0084
NBGQA	National Building Granite Quarries Association, Inc. www.nbgqa.com	(800) 557-2848
NCAA	National Collegiate Athletic Association (The) www.ncaa.org	(317) 917-6222
NCMA	National Concrete Masonry Association www.ncma.org	(703) 713-1900
NCPI	National Clay Pipe Institute www.ncpi.org	(262) 248-9094
NCTA	National Cable & Telecommunications Association www.ncta.com	(202) 775-2300

NEBB	National Environmental Balancing Bureau www.nebb.org	(301) 977-3698
NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110
NeLMA	Northeastern Lumber Manufacturers' Association www.nelma.org	(207) 829-6901
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NETA	InterNational Electrical Testing Association www.netaworld.org	(888) 300-6382 (269) 488-6382
NFHS	National Federation of State High School Associations www.nfhs.org	(317) 972-6900
NFPA	NFPA (National Fire Protection Association) www.nfpa.org	(800) 344-3555 (617) 770-3000
NFRC	National Fenestration Rating Council www.nfrc.org	(301) 589-1776
NGA	National Glass Association www.glass.org	(866) 342-5642 (703) 442-4890
NHLA	National Hardwood Lumber Association www.natlhardwood.org	(800) 933-0318 (901) 377-1818
NLGA	National Lumber Grades Authority www.nlga.org	(604) 524-2393
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association) www.nofma.com	(901) 526-5016
NOMMA	National Ornamental & Miscellaneous Metals Association www.nomma.org	(888) 516-8585
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400
NSF	NSF International (National Sanitation Foundation International)	(800) 673-6275 (734) 769-8010

	www.nsf.org	
NSSGA	National Stone, Sand & Gravel Association www.nssga.org	(800) 342-1415 (703) 525-8788
NTMA	National Terrazzo & Mosaic Association, Inc. (The) www.ntma.com	(800) 323-9736 (540) 751-0930
NTRMA	National Tile Roofing Manufacturers Association (Now TRI)	
NWWDA	National Wood Window and Door Association (Now WDMA)	
OPL	Omega Point Laboratories, Inc. (Now ITS)	
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300
PDCA	Painting & Decorating Contractors of America www.pdca.com	(800) 332-7322 (314) 514-7322
PDI	Plumbing & Drainage Institute www.pdionline.org	(800) 589-8956 (978) 557-0720
PGI	PVC Geomembrane Institute http://pgi-tp.ce.uiuc.edu	(217) 333-3929
PLANET	Professional Landcare Network (Formerly: ACLA - Associated Landscape Contractors of America) www.landcarenetwork.org	(800) 395-2522 (703) 736-9666
PTI	Post-Tensioning Institute www.post-tensioning.org	(602) 870-7540
RCSC	Research Council on Structural Connections www.boltcouncil.org	
RFCI	Resilient Floor Covering Institute www.rfci.com	(301) 340-8580
RIS	Redwood Inspection Service www.redwoodinspection.com	(888) 225-7339 (415) 382-0662
SAE	SAE International www.sae.org	(877) 606-7323 (724) 776-4841
SDI	Steel Deck Institute	(847) 458-4647

	www.sdi.org	
SDI	Steel Door Institute www.steeldoor.org	(440) 899-0010
SEFA	Scientific Equipment and Furniture Association www.sefalabs.com	(877) 294-5424 (516) 294-5424
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE)	
SGCC	Safety Glazing Certification Council www.sgcc.org	(315) 646-2234
SIA	Security Industry Association www.siaonline.org	(866) 817-8888 (703) 683-2075
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)	
SJI	Steel Joist Institute www.steeljoist.org	(843) 626-1995
SMA	Screen Manufacturers Association www.smacentral.org	(561) 533-0991
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SMPTE	Society of Motion Picture and Television Engineers www.smpte.org	(914) 761-1100
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division) www.sprayfoam.org	(800) 523-6154
SPIB	Southern Pine Inspection Bureau (The) www.spib.org	(850) 434-2611
SPRI	Single Ply Roofing Industry www.spri.org	(781) 647-7026
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(877) 281-7772 (412) 281-2331

STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
SWRI	Sealant, Waterproofing, & Restoration Institute www.swrionline.org	(816) 472-7974
TCA	Tile Council of America, Inc. (Now TCNA)	
TCNA	Tile Council of North America, Inc. www.tileusa.com	(864) 646-8453
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance www.tiaonline.org	(703) 907-7700
TMS	The Masonry Society www.masonrysociety.org	(303) 939-9700
TPI	Truss Plate Institute, Inc. www.tpinst.org	(703) 683-1010
TPI	Turfgrass Producers International www.turfgrasssod.org	(800) 405-8873 (847) 649-5555
TRI	Tile Roofing Institute www.tilerroofing.org	(312) 670-4177
UL	Underwriters Laboratories Inc. www.ul.com	(877) 854-3577 (847) 272-8800
UNI	Uni-Bell PVC Pipe Association www.uni-bell.org	(972) 243-3902
USAV	USA Volleyball www.usavolleyball.org	(888) 786-5539 (719) 228-6800
USGBC	U.S. Green Building Council www.usgbc.org	(800) 795-1747
USITT	United States Institute for Theatre Technology, Inc. www.usitt.org	(800) 938-7488 (315) 463-6463
WASTEC	Waste Equipment Technology Association www.wastec.org	(800) 424-2869 (202) 244-4700

WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association www.wcmanet.org	(212) 297-2122
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association) www.windowcoverings.org	(800) 506-4636 (212) 297-2109
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association) www.wdma.com	(800) 223-2301 (847) 299-5200
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California) www.wicnet.org	(916) 372-9943
WIC	Woodwork Institute of California (Now WI)	
WMMPA	Wood Moulding & Millwork Producers Association www.wmmpa.com	(800) 550-7889 (530) 661-9591
WSRCA	Western States Roofing Contractors Association www.wsrca.com	(800) 725-0333 (650) 570-5441
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930

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

IAPMO	International Association of Plumbing and Mechanical Officials www.iapmo.org	(909) 472-4100
ICC	International Code Council www.iccsafe.org	(888) 422-7233
ICC-ES	ICC Evaluation Service, Inc. www.icc-es.org	(800) 423-6587 (562) 699-0543
UBC	Uniform Building Code (See ICC)	

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

CE	Army Corps of Engineers www.usace.army.mil	(202) 761-0011
CPSC	Consumer Product Safety Commission www.cpsc.gov	(800) 638-2772 (301) 504-7923
DOC	Department of Commerce www.commerce.gov	(202) 482-2000
DOD	Department of Defense http://.dodssp.daps.dla.mil	(215) 697-6257
DOE	Department of Energy www.energy.gov	(202) 586-9220
EPA	Environmental Protection Agency www.epa.gov	(202) 272-0167
FAA	Federal Aviation Administration www.faa.gov	(866) 835-5322
FCC	Federal Communications Commission www.fcc.gov	(888) 225-5322
FDA	Food and Drug Administration www.fda.gov	(888) 463-6332
GSA	General Services Administration www.gsa.gov	(800) 488-3111
HUD	Department of Housing and Urban Development www.hud.gov	(202) 708-1112
LBL	Lawrence Berkeley National Laboratory www.lbl.gov	(510) 486-4000
NCHRP	National Cooperative Highway Research Program (See TRB)	
NIST	National Institute of Standards and Technology www.nist.gov	(301) 975-6478
OSHA	Occupational Safety & Health Administration www.osha.gov	(800) 321-6742 (202) 693-1999

PBS	Public Buildings Service (See GSA)	
PHS	Office of Public Health and Science www.osophs.dhhs.gov/ophs	(202) 690-7694
RUS	Rural Utilities Service (See USDA)	(202) 720-9540
SD	State Department www.state.gov	(202) 647-4000
TRB	Transportation Research Board http://gulliver.trb.org	(202) 334-2934
USDA	Department of Agriculture www.usda.gov	(202) 720-2791
USPS	Postal Service www.usps.com	(202) 268-2000

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

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities Available from U.S. Access Board www.access-board.gov	(800) 872-2253 (202) 272-0080
CFR	Code of Federal Regulations Available from Government Printing Office www.gpoaccess.gov/cfr/index.html	(866) 512-1800 (202) 512-1800
DOD	Department of Defense Military Specifications and Standards Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-2664
DSCC	Defense Supply Center Columbus (See FS)	
FED-STD	Federal Standard (See FS)	
FS	Federal Specification Available from Department of Defense Single Stock Point	(215) 697-2664

<http://dodssp.daps.dla.mil>

Available from Defense Standardization Program
www.dps.dla.mil

Available from General Services Administration (202) 619-8925
www.gsa.gov

Available from National Institute of Building Sciences (202) 289-7800
www.wbdg.org/ccb

FTMS Federal Test Method Standard
(See FS)

MIL (See MILSPEC)

MIL-STD (See MILSPEC)

MILSPEC Military Specification and Standards (215) 697-2664
Available from Department of Defense Single Stock Point
<http://dodssp.daps.dla.mil>

UFAS Uniform Federal Accessibility Standards (800) 872-2253
Available from Access Board (202) 272-0080
www.access-board.gov

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

CBHF State of California, Department of Consumer Affairs Bureau of (800) 952-5210
Home Furnishings and Thermal Insulation
www.dca.ca.gov/bhfti (916) 574-2041

CCR California Code of Regulations (916) 323-6815
www.calregs.com

CPUC California Public Utilities Commission (415) 703-2782
www.cpuc.ca.gov

TFS Texas Forest Service (979) 458-6650
Forest Resource Development
<http://txforests-service.tamu.edu>

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 015000 – TEMPORARY FACILITIES AND CONTROLS**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Division 01 Section "Summary of Work" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, testing agencies, and authorities having jurisdiction.
- B. Sewer Service: Pay sewer-service use charges for sewer usage by all entities for construction operations.
- C. Water Service: Pay water-service use charges for water used by all entities for construction operations.
- D. Electric Power Service: Pay electric-power-service use charges for electricity used by all entities for construction operations.

1.4 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

- C. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines.

1.5 PROJECT CONDITIONS

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

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Open-Mesh Temporary Fencing: Provide 11 gage, galvanized 2-inch chain link fabric fencing 6 feet high with galvanized steel pipe posts, 1-1/2 inches I.D. for line posts and 2-1/2 inches I.D. for corner posts.

2.2 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Architect, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:
 - 1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
 - 2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot- (1.2-m-) square tack and marker boards.
 - 3. Drinking water and private toilet.
 - 4. Coffee machine and supplies.
 - 5. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F (20 to 22 deg C).
 - 6. Lighting fixtures capable of maintaining average illumination of 20 fc (215 lx) at desk height.
- C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - 1. Store combustible materials apart from building.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
 - 1. Locate facilities to limit site disturbance as specified in Division 01 Section "Summary of Work."
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

- E. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- F. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
1. Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.
- G. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
1. Install electric power service overhead unless otherwise indicated.
- H. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- I. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line(s) for each field office.
1. Provide additional telephone lines for the following:
 - a. Provide a dedicated telephone line for each facsimile machine in each field office.
 2. At each telephone, post a list of important telephone numbers.
 - a. Police and fire departments.
 - b. Ambulance service.
 - c. Contractor's home office.
 - d. Contractor's emergency after-hours telephone number.
 - e. Architect's office.
 - f. Engineers' offices.
 - g. Owner's office.
 - h. Principal subcontractors' field and home offices.
 3. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
 2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas within construction limits indicated on Drawings.
1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
- C. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
 2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to Division 31.
 3. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
 4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to Division 32 Section "Asphalt Paving."
- D. Traffic Controls: Comply with requirements of authorities having jurisdiction.
1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- E. Parking: Provide temporary parking areas for construction personnel.
- F. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.

- G. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
 - 1. Identification Signs: Provide Project identification signs as indicated on Drawings.
 - 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
 - 3. Maintain and touchup signs so they are legible at all times.
- H. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.
- I. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- B. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- C. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.
- D. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel.

- E. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.
- F. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- G. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- H. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.
- I. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
 - 1. Prohibit smoking in construction areas.
 - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 - 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
- B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
 - 1. Protect porous materials from water damage.
 - 2. Protect stored and installed material from flowing or standing water.
 - 3. Keep porous and organic materials from coming into prolonged contact with concrete.
 - 4. Remove standing water from decks.
 - 5. Keep deck openings covered or dammed.

- C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
 2. Keep interior spaces reasonably clean and protected from water damage.
 3. Periodically collect and remove waste containing cellulose or other organic matter.
 4. Discard or replace water-damaged material.
 5. Do not install material that is wet.
 6. Discard, replace, or clean stored or installed material that begins to grow mold.
 7. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.
- D. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
 2. Use permanent HVAC system to control humidity.
 3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.
 - a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective.
 - b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.
 - c. Remove materials that cannot be completely restored to their manufactured moisture level within 48 hours.

3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Operate Project-identification-sign lighting daily from dusk until 12:00 midnight.

- D. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- E. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION

SECTION 016000 – PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Additional procedures as specified in other Sections of these Specifications.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing the Contractor's selection of products for use in the Project.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 01 Section "Submittals."
 - 2. Division 01 Section "Substitution Procedures."
 - 3. Division 01 Section "References" for applicable industry standards for products specified.

1.3 DEFINITIONS

- A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well-recognized meanings in the construction industry.
 - 1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 2. "Named Products" are items identified by the manufacturer's product name, including make or model number or other designation, shown or listed in the manufacturer's published product literature, that is current as of the date of the Contract Documents.
 - 3. "Materials" are products substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
 - 4. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections, such as wiring or piping.

1.4 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same kind from a single source.
 - 1. When specified products are available only from sources that do not, or cannot, produce a quantity adequate to complete project requirements in a timely manner, consult with the Architect to determine the most important product qualities before proceeding. Qualities may include attributes, such as visual appearance, strength, durability, or compatibility. When a determination has been made, select products from sources producing products that possess these qualities, to the fullest extent possible.
- B. Compatibility of Options: When the Contractor is given the option of selecting between 2 or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.
- C. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products that will be exposed to view in occupied spaces or on the exterior.
 - 1. Labels: Locate required product labels and stamps on concealed surfaces or, where required for observation after installation, on accessible surfaces that are not conspicuous.
 - 2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface that is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:
 - a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.
 - e. Ratings.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.
 - 1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.

3. Deliver products to the site in an undamaged condition in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
7. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, new at the time of installation.
 1. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and the intended use and effect.
 2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
 1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 3. Evidence that proposed product provides specified warranty.

4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION

3.1 INSTALLATION OF PRODUCTS

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.
 1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION

SECTION 017300 – EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Coordination of Owner-installed products.
 - 6. Progress cleaning.
 - 7. Starting and adjusting.
 - 8. Protection of installed construction.
 - 9. Correction of the Work.
- B. Related Requirements:
 - 1. Division 01 Section "Summary of Work" for limits on use of Project site.
 - 2. Division 01 Section "Submittals" for submitting surveys.
 - 3. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For professional engineer.

- B. Certificates: Submit certificate signed by professional engineer certifying that location and elevation of improvements comply with requirements.
- C. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
 - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
 - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
 - 3. Products: List products to be used for patching and firms or entities that will perform patching work.
 - 4. Dates: Indicate when cutting and patching will be performed.
 - 5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
 - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
- D. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- E. Certified Surveys: Submit two copies signed by professional engineer.
- F. Final Property Survey: Submit 10 copies showing the Work performed and record survey data.

1.5 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.

2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
 - a. Primary operational systems and equipment.
 - b. Fire separation assemblies.
 - c. Air or smoke barriers.
 - d. Fire-suppression systems.
 - e. Mechanical systems piping and ducts.
 - f. Control systems.
 - g. Communication systems.
 - h. Fire-detection and -alarm systems.
 - i. Conveying systems.
 - j. Electrical wiring systems.
 - k. Operating systems of special construction.
 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
 - a. Water, moisture, or vapor barriers.
 - b. Membranes and flashings.
 - c. Exterior curtain-wall construction.
 - d. Sprayed fire-resistive material.
 - e. Equipment supports.
 - f. Piping, ductwork, vessels, and equipment.
 - g. Noise- and vibration-control elements and systems.
 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- C. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- D. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - 1. Description of the Work.
 - 2. List of detrimental conditions, including substrates.
 - 3. List of unacceptable installation tolerances.
 - 4. Recommended corrections.

- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Division 01 Section "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. General: Engage a professional engineer to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 - 2. Establish limits on use of Project site.
 - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 4. Inform installers of lines and levels to which they must comply.
 - 5. Check the location, level and plumb, of every major element as the Work progresses.
 - 6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
 - 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
 - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 - 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.
- E. Final Property Survey: Engage a professional engineer to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by professional engineer, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 2. Allow for building movement, including thermal expansion and contraction.

3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
 - I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
 - J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Division 01 Section "Summary."
- F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.

4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 6. Proceed with patching after construction operations requiring cutting are complete.
- G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- H. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 OWNER-INSTALLED PRODUCTS (if any)

- A. Site Access: Provide access to Project site for Owner's construction personnel.

- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.
1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
 2. Preinstallation Conferences: Include Owner's construction personnel at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.8 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.9 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: Comply with qualification requirements in Division 01 Section "Quality Requirements."

3.10 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION

SECTION 017400 – WARRANTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturers standard warranties on products and special warranties.
 - 1. Refer to the General Conditions for terms of the Contractor's period for correction of the Work.
- B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.3 DEFINITIONS

- A. Standard product warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
- B. Special warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.4 WARRANTY REQUIREMENTS

- A. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.

- B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
- D. Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.
 - 1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
- E. Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

1.5 SUBMITTALS

- A. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect.
- B. When the Contract Documents require the Contractor, or the Contractor and a subcontractor, supplier or manufacturer to execute a special warranty, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner, through the Architect, for approval prior to final execution.
 - 1. Refer to Divisions 02 through 26 Sections for specific content requirements and particular requirements for submitting special warranties.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION

SECTION 017700 – CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of the Work.
- B. Related Requirements:
 - 1. Division 01 Section "Execution" for progress cleaning of Project site.
 - 2. Divisions 02 through 33 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 ACTION SUBMITTALS

- A. Product Data: For cleaning agents.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest control inspection.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 - 3. Submit closeout submittals specified in individual Divisions 02 through 33 Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Submit maintenance material submittals specified in individual Divisions 02 through 33 Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittals.
 - 5. Submit test/adjust/balance records.
 - 6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 3. Complete startup and testing of systems and equipment.

4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
 6. Advise Owner of changeover in heat and other utilities.
 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 9. Complete final cleaning requirements, including touchup painting.
 10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
 11. Additional inspections as required by any Lease Agreements.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 4. Submit pest-control final inspection report.
 5. Final Inspections as required by any Lease Agreements.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 1. Organize list of spaces in sequential order.
 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Page number.
 4. Submit list of incomplete items in the following format:
 - a. MS Excel electronic file. Architect will return annotated file.
 - b. PDF electronic file. Architect will return annotated file.
 - c. Three paper copies. Architect will return two copies.

1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
1. Use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.

- e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - g. Sweep concrete floors broom clean in unoccupied spaces.
 - h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
 - i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - j. Remove labels that are not permanent.
 - k. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - l. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - m. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - n. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
 - 1) Clean HVAC system in compliance with most recent NADCA ACR Standard, to be performed by a NADCA-certified technician. Provide written report on completion of cleaning.
 - o. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
 - p. Leave Project clean and ready for occupancy.
- C. Pest Control: Comply with pest control requirements in Division 01 Section "Temporary Facilities and Controls." Prepare written report.

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
 - 1. Footings.
 - 2. Slabs-on-grade.
- B. Related Sections:
 - 1. Division 01 Section "Quality Requirements" for administrative and procedural requirements for quality assurance including independent testing requirements.
 - 2. Division 31 Section "Earthwork" for drainage fill under slabs-on-grade.
 - 3. Division 32 Section "Concrete Paving and Walks" for concrete pavement and walks.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

1. Shop drawings shall be in accordance with ACI SP-66 or CRSI "Manual of Standard Practice."
 2. Mill certificates: Steel producer's certificates of mill analysis, tensile, and bend tests for reinforcing steel. Submit certificates accompanying the Shop Drawings.
- D. Construction Joint Layout: Indicate proposed construction joints required to construct the structure. Location of construction joints is subject to approval of the Architect.
- E. Qualification Data: For Installer, manufacturer, and testing agency.
- F. Material Certificates: For each of the following, signed by manufacturers:
1. Cementitious materials.
 2. Admixtures.
 3. Form materials and form-release agents.
 4. Steel reinforcement and accessories.
 5. Waterstops.
 6. Curing compounds.
 7. Floor and slab treatments.
 8. Vapor retarders.
 9. Semirigid joint filler.
 10. Joint-filler strips.
 11. Repair materials.
- G. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.
- H. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.
- I. Field quality-control reports.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

- C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.
- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
- E. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
 2. ACI 318-14, "Building Code Requirements for Structural Concrete" with amendments per 2019 California Building Code, Chapter 19, Section 1905A.
 3. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- F. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
1. Plywood, metal, or other approved panel materials.
 2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
 - a. High-density overlay, Class 1 or better.
 - b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
 - c. Structural 1, B-B or better; mill oiled and edge sealed.

- d. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch (19 by 19 mm), minimum.
- D. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
- E. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

2.2 STEEL REINFORCEMENT

- A. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25 percent.
- B. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 , deformed.
- C. Plain-Steel Wire: ASTM A 82/A 82M, as drawn.
- D. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.
- E. Fabricating Reinforcement: Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice" or ACI SP-66 and the details shown on the Drawings.
 - 1. In the case of fabricating errors, do not rebend or straighten reinforcement in a manner that will damage or weaken the material.
 - 2. Bends shall be made cold using pin sizes as recommended ACI 318 as modified by T24, CCR, Part 2.
 - 3. Unacceptable Work: Reinforcement with any of the following defects will not be permitted:
 - a. Bar lengths, depths, and bends exceeding specified fabrication tolerance.
 - b. Bends or kinks not indicated on the project Drawings or the final Shop Drawings.
 - c. Bars with reduced cross-section due to excessive rusting or other cause.

2.3 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.

- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
1. Slabs on Grade and Foundations: Use precast concrete blocks, plastic-coated steel with bearing plates or specifically designed wire-fabric supports fabricated of plastic. Precast blocks shall be not less than 3 inches by 3 inches square and shall have a compressive strength equal to or greater than the strength of the surrounding concrete.
 2. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.4 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
1. Portland Cement: ASTM C 150, Type II, gray. Supplement with the following:
 - 1) ASTM C 150, Type V where concrete will be in contact with corrosive soils or mixed with aggregates containing reactive substances. Low alkali cement shall contain not more than 0.6 percent total alkali when calculated as sodium oxide as determined by the method given in ASTM C114.
 - 2) Fly Ash: ASTM C 618, Class F. The use of a quality fly ash will be permitted as a cement-reducing admixture up to a maximum of 20% of the weight of portland-cement.
- A. Normal-Weight Aggregates: ASTM C 33, Class 3M coarse aggregate or better, graded. Provide aggregates from a single source.
1. Maximum Coarse-Aggregate Size: 1 inch nominal.
 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
 3. Where concrete expansion from alkali silica or alkali carbonate reactions is anticipated, provide aggregate with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.
 4. Fine and coarse aggregates shall be regarded as separate ingredients. Each size of coarse aggregate, as well as the combination of sizes when two or more are used, shall conform to the grading requirements of ASTM C33.
 5. Coarse aggregate: Coarse aggregate shall consist of a clean, hard, fine grained, sound crushed rock, or washed gravel or a combination of both. It shall be free from oil, organic matter, or other deleterious substances. Aggregate shall be uniformly graded from one-quarter inch size to maximum size.
 6. The maximum size of aggregates used in the project shall be consistent with the dimensions and form of the section being placed, the location and spacing of the

reinforcing bars, and with the method of compaction, and shall be such as will produce

dense and uniform concrete free from rock pockets, honey-comb and other irregularities. The nominal maximum size of the aggregate shall not be more than one-fifth the narrowest dimension between forms, one-third the depth of slabs nor three-fourths the minimum clear spacing between reinforcing bars

7. Soundness of Aggregates: Both the coarse and fine aggregate shall be tested by the use of a solution of sodium or magnesium sulfate, or both, whenever in the judgment of the Architect, such tests are necessary to determine the quality of the material. Such tests shall be performed in accordance with ASTM C88 and the results shall show compliance with the limits set forth in ASTM C33.
8. Reactivity: Aggregates shall be free from any substance which may be deleteriously reactive with the alkalis in the cement in an amount sufficient to cause excessive expansion of the concrete or which will interfere with normal hydration of the cement. Acceptability of the aggregate shall be based upon satisfactory evidence that the aggregate is free from such materials.
9. Aggregates shall be tested, when required by the Architect prior to the concrete mix being established, in accordance with the following specifications:

Test	Specification
Abrasion	ASTM C131 and C535
Gradation	ASTM C136
Alkali Reactivity	ASTM C289 and C227
Organic Impurities	ASTM C40
Clay Lumps	ASTM C142

- B. Water: ASTM C 94 and potable.

2.5 ADMIXTURES

- A. Admixtures shall be reviewed and approved by the Architect and Structural Engineer.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 2. Air-Entraining Admixture: ASTM C 260.
 3. Retarding Admixture: ASTM C 494/C 494M, Type B.
 4. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
 5. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
 6. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
 7. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.6 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
1. Products: Subject to compliance with requirements, provide the following:
 - a. Axim Italcementi Group, Inc.; CATEXOL CimFilm.
 - b. BASF Construction Chemicals - Building Systems; Confilm.
 - c. ChemMasters; SprayFilm.
 - d. Conspec by Dayton Superior; Aquafilm.
 - e. Dayton Superior Corporation; Sure Film (J-74).
 - f. Edoco by Dayton Superior; BurkeFilm.
 - g. Euclid Chemical Company (The), an RPM company; Eucobar.
 - h. Kaufman Products, Inc.; Vapor-Aid.
 - i. Lambert Corporation; LAMBCO Skin.
 - j. L&M Construction Chemicals, Inc.; E-CON.
 - k. Meadows, W. R., Inc.; EVAPRE.
 - l. Metalcrete Industries; Waterhold.
 - m. Nox-Crete Products Group; MONOFILM.
 - n. Sika Corporation; SikaFilm.
 - o. SpecChem, LLC; Spec Film.
 - p. Symons by Dayton Superior; Finishing Aid.
 - q. TK Products, Division of Sierra Corporation; TK-2120 TRI-FILM.
 - r. Unitex; PRO-FILM.
 - s. Vexcon Chemicals, Inc.; Certi-Vex Envio Set.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately **9 oz./sq. yd. (305 g/sq. m)** when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
1. Products: Subject to compliance with requirements, provide the following:
 - a. Anti-Hydro International, Inc.; AH Curing Compound #2 DR WB.
 - b. BASF Construction Chemicals - Building Systems; Kure 200.
 - c. ChemMasters; Safe-Cure Clear.
 - d. Conspec by Dayton Superior; W.B. Resin Cure.
 - e. Dayton Superior Corporation; Day-Chem Rez Cure (J-11-W).
 - f. Edoco by Dayton Superior; Res X Cure WB.
 - g. Euclid Chemical Company (The), an RPM company; Kurez W VOX; TAMMSCURE WB 30C.
 - h. Kaufman Products, Inc.; Thinfilm 420.
 - i. Lambert Corporation; AQUA KURE - CLEAR.

- j. L&M Construction Chemicals, Inc.; L&M Cure R.
 - k. Meadows, W. R., Inc.; 1100-CLEAR.
 - l. Nox-Crete Products Group; Resin Cure E.
 - m. Right Pointe; Clear Water Resin.
 - n. SpecChem, LLC; Spec Rez Clear.
 - o. Symons by Dayton Superior; Resi-Chem Clear.
 - p. TK Products, Division of Sierra Corporation; TK-2519 DC WB.
 - q. Vexcon Chemicals, Inc.; Certi-Vex Enviocure 100.
- F. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound:
ASTM C 1315, Type 1, Class A.
- 1. Products: Subject to compliance with requirements, provide the following:
 - a. BASF Construction Chemicals - Building Systems; Kure-N-Seal 25 LV.
 - b. ChemMasters; Spray-Cure & Seal Plus.
 - c. Conspec by Dayton Superior; Sealcure 1315.
 - d. Dayton Superior Corporation; Day-Chem Cure and Seal (J-22UV).
 - e. Edoco by Dayton Superior; Cureseal 1315.
 - f. Euclid Chemical Company (The), an RPM company; Super Diamond Clear; LusterSeal 300.
 - g. Kaufman Products, Inc.; Sure Cure 25.
 - h. Lambert Corporation; UV Super Seal.
 - i. L&M Construction Chemicals, Inc.; Lumiseal Plus.
 - j. Meadows, W. R., Inc.; CS-309/30.
 - k. Metalcrete Industries; Seal N Kure 30.
 - l. Right Pointe; Right Sheen 30.
 - m. Vexcon Chemicals, Inc.; Certi-Vex AC 1315.
- G. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound:
ASTM C 1315, Type 1, Class A.
- 1. Products: Subject to compliance with requirements, provide the following:
 - a. BASF Construction Chemicals - Building Systems; Kure 1315.
 - b. ChemMasters; Polyseal WB.
 - c. Conspec by Dayton Superior; Sealcure 1315 WB.
 - d. Edoco by Dayton Superior; Cureseal 1315 WB.
 - e. Euclid Chemical Company (The), an RPM company; Super Diamond Clear VOX; LusterSeal WB 300.
 - f. Kaufman Products, Inc.; Sure Cure 25 Emulsion.
 - g. Lambert Corporation; UV Safe Seal.
 - h. L&M Construction Chemicals, Inc.; Lumiseal WB Plus.
 - i. Meadows, W. R., Inc.; Vocomp-30.
 - j. Metalcrete Industries; Metcure 30.
 - k. Right Pointe; Right Sheen WB30.
 - l. Symons by Dayton Superior; Cure & Seal 31 Percent E.
 - m. Vexcon Chemicals, Inc.; Vexcon Starseal 1315.

2.7 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.8 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301, ACI 318, Chapter 4, and Chapter 19 of the California Building Code.
 - 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
 - 1. Fly Ash: 20 percent.
- C. Limit water-soluble, chloride-ion content in hardened concrete to the following percentages by weight of cement.
 - 1. Reinforced concrete exposed to chloride in service: 0.15 percent.
 - 2. Other reinforced concrete: 0.30 percent.
- D. Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use water-reducing, high-range water-reducing, or plasticizing admixture in concrete, as required, for placement and workability.
 - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 - 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
 - 4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

2.9 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Proportion normal-weight concrete mixture as indicated on Drawings for strength, slump, water/cement ratio, and maximum aggregate size.

2.10 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94 and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.
- B. Project-Site Mixing: Project site mixing of structural concrete will not be permitted. Project site mixing of concrete for other purposes may be permitted only when reviewed and approved by the Architect. When allowed, measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M and ACI 318. Mix concrete materials in appropriate drum-type batch machine mixer, the capacity of the mixer shall be such that it will handle one or more full sack batches.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
 1. Where earth is used for forming sides of footings, increase the width of footings by 1 inch on each side of the footing.
- C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
 1. Class A, 1/8 inch for smooth-formed finished surfaces.
 2. Class B, 1/4 inch for rough-formed finished surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 1. Install keyways, recesses, and the like, for easy removal.
 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

- H. Chamfer exterior corners and edges of permanently exposed concrete.
- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
 - 2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
 - 3. All anchor rods shall be of heavy hex head type conforming to the requirements of ASTM F1554 Grade 36.
 - 4. All reinforcing steel, anchor rods, dowels and other items shall be in place and shall be well secured in position prior to placing concrete.
- B. Conduits and Pipes Embedded in Concrete:
 - 1. Pipes, other than conduits for electrical circuits, shall not be embedded in structural concrete unless specifically reviewed and approved by the Architect. Any pipe or conduit may pass through any walls or floor slab by means of a sleeve so located that it does not impair the strength of the structure. Openings larger than 12 inches in any dimension shall be as detailed on the structural plans.
 - 2. Unless otherwise approved, embedded pipes or conduits, other than those merely passing through, shall be not larger in outside dimension than one-third the thickness of the slab, wall, or beam in which they are embedded, nor shall they be spaced closer than three diameters or widths on center and shall have at least 1-1/2 inches concrete cover.
 - 3. Sleeves, pipes, or conduits of aluminum shall not be embedded in structural concrete unless effectively coated or covered to prevent aluminum-concrete reaction or electrolytic action between aluminum and steel.

3.3 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.5 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 - 2. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
 2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Division 07 Section "Joint Sealants," are indicated.
 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.6 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301. Final water/ cementitious materials ratio shall not exceed what is specified on the drawings.
1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 2. Maintain reinforcement in position on chairs during concrete placement.
 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 4. Slope surfaces uniformly to drains where required.
 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- G. Hot-Weather Placement: Comply with ACI 301 and as follows:
1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.7 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

- B. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces indicated where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.
 - 1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.

3.8 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.
- D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel finish concrete surfaces.

3.9 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
 - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.10 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
 1. Defer joint filling until concrete has aged at least one month. Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.11 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a **No. 16 (1.18-mm)** sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 - 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than **1/2 inch (13 mm)** in any dimension to solid concrete. Limit cut depth to **3/4 inch (19 mm)**. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 - 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 - 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
 - 1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of **0.01 inch (0.25 mm)** wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 - 2. After concrete has cured at least 14 days, correct high areas by grinding.
 - 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 - 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.

5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of **1/4 inch (6 mm)** to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 6. Repair defective areas, except random cracks and single holes **1 inch (25 mm)** or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a **3/4-inch (19-mm)** clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 7. Repair random cracks and single holes **1 inch (25 mm)** or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.12 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Testing and Inspecting: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- C. Contractor Responsibilities:
1. The Contractor shall maintain control of the quality of materials and workmanship in order to conform with the drawings and specifications.
 2. To facilitate testing and inspection, the Contractor shall:
 - a. Schedule tests and inspections with the Testing and Inspection Agency sufficiently in advance of operations to allow for the assignment of personnel and for the completion of testing and inspecting responsibilities.
 - b. Provide access to the Work for the designated Testing and Inspection Agency.
 - c. Furnish all necessary materials and labor to assist the designated Testing and Inspection Agency in obtaining and handling samples at the project or other sources of materials.

- d. Provide and maintain for the sole use of the Testing and Inspection Agency adequate facilities for safe storage and proper curing of concrete test specimens on the project site for the first 24 hr. as required by ASTM C31.
3. The Contractor shall correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

D. Inspections:

1. Testing and inspections shall be performed by the designated Testing and Inspection Agency.
2. Testing and inspections shall be in accordance with the 2019 California Building Code, Section 1705A.3 and Table 1705A.3, Structural Drawings Special Inspection Criteria, and shall include but not be limited to the following:
 - a. Inspection of steel reinforcement.
 - b. Inspection of headed bolts and studs prior and during concrete placement.
 - c. Verification of use of required design mixture.
 - d. Sampling of concrete for strength tests, slump, air content, and temperature of concrete at time of placement.
 - e. Inspection of concrete placement, including conveying and depositing.
 - f. Inspection of curing procedures and maintenance of curing temperature.
 - g. Verification of concrete strength before removal of shores and forms from beams and slabs.
 - h. Inspection of formwork.

E. Sampling and Testing of Steel Reinforcement:

1. Samples of reinforcing steel shall be taken by a designated approved testing agency at place of distribution prior to shipment or at project site.
2. Where samples are taken from bundles as delivered from the mill, with the bundles identified as to heat number and provided the mill analyses accompany the report, one tensile test and one bend test shall be made from a specimen from each 10 tons or fraction thereof of each size of reinforcing steel.
 - a. Where positive identification of the heat number cannot be made or where random samples are to be taken, one series of tests shall be made from each 2-1/2 tons or fraction thereof of each size of reinforcing steel.
3. Each sample shall consist of no fewer than two pieces, each 18 inches long, of each size and grade or reinforcing steel.

F. Batch Plant Inspection: The quality and quantity of materials used in transit mixed concrete and in batched aggregates shall be continuously inspected at the location where materials are measured by an approved Testing and Inspection Agency.

1. Waiver of Batch Plant Inspection: Batch plant inspection will not be required under the following conditions:
 - a. The concrete plant complies fully with the requirements of ASTM C94, Sections 8 and 9, and has a current certificate from the National Ready

Mixed Concrete Association. The certification shall indicate that the plant has automatic batching and recording capabilities.

- b. The Testing Agency shall check the first batching at the start of work and furnish mix proportions to the licensed weighmaster.
 - c. Licensed weighmaster shall positively identify materials as to quantity and certify to each load by a ticket.
 - d. Tickets shall be transmitted to the Contractor by cement truck driver with load identified thereon. Do not accept loads without a load ticket identifying the mix; Contractor shall keep a daily record of placements identifying each truck, its load and time of receipt, and approximate location of deposit in the structure and will transmit a copy of the daily record to the Architect.
 - e. At the end of the project, the weighmaster shall furnish an affidavit to the Architect certifying that all concrete furnished conforms in every particular to proportions established by mix designs.
 - f. The Testing Agency shall certify and submit evidence of compliance to the governing agency and obtain governing agency's approval prior for a waiver of batch plant inspection prior to mixing the concrete.
- G. Placement Record: A record shall be kept on-site of the time and date of placing the concrete in each portion of the structure. Such record shall be kept until the completion of the structure and shall be open to the inspection of the governing.
- H. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture but not less than one sample for each 50 cu. yd. or fraction thereof and one sample for each 2,000 square feet of slab area.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 2. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
 5. Compression Test Specimens: ASTM C 31/C 31M.
 - a. Cast and laboratory cure four standard cylinder specimens for each composite sample.

6. Compressive-Strength Tests: ASTM C 39/C 39M; test one specimen at 7 days for information and two cured specimens at 28 days for strength acceptance, the fourth specimen shall be held in reserve in case additional testing is necessary.
 - a. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
 7. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
 8. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
 9. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
 10. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
 11. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
 12. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
- I. Measure floor and slab flatness and levelness according to [ASTM E 1155](#) ([ASTM E 1155M](#)) within 24 hours of finishing.

END OF SECTION

QC1-16

Specification for AWS Certification of Welding Inspectors

4. Steel Structures Painting Council (SSPC):

Steel Structures Painting Manual, Vol 2, Systems and Specifications, latest edition

5. Research Council on Structural Connections of the Engineering Foundation (RCSC).

Structural Joints Using ASTM A325 or A490 Bolts – August 1, 2014

1.4 DEFINITIONS

- A. Structural Steel: Elements of structural-steel frame, as classified by AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."
- B. Seismic-Load-Resisting System: Elements of structural-steel frame designated as "SLRS" or along grid lines designated as "SLRS" on Drawings, including columns, beams, and braces and their connections.
- C. Protected Zone: Structural members or portions of structural members indicated as "Protected Zone" on Drawings. Connections of structural and nonstructural elements to protected zones are limited.
- D. Demand Critical Welds: Those welds, the failure of which would result in significant degradation of the strength and stiffness of the Seismic-Load-Resisting System and which are indicated as "Demand Critical" or "Seismic Critical" on Drawings.

1.5 SUBMITTALS

- A. General: Submit the following according to Conditions of the contract and Division 1 Specifications.
- B. Shop Drawings: Shop drawings shall be reviewed by the Architect and Structural Engineer prior to fabrication. Show fabrication of structural-steel components:
 - 1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
 - 2. Include embedment drawings.
 - 3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
 - 4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical high-strength bolted connections.
 - 5. Identify members and connections of the seismic-load-resisting system.
 - 6. Indicate locations and dimensions of protected zones.

7. Identify demand critical welds.
- C. Welding Procedure Specifications (WPSs) and Procedure Qualification Records (PQRs): Provide according to AWS D1.1/D1.1M, "Structural Welding Code - Steel," for each welded joint whether prequalified or qualified by testing, including the following:
 1. Power source (constant current or constant voltage).
 2. Electrode manufacturer and trade name, for demand critical welds.
- D. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.
- E. Mill test reports for structural steel, including chemical and physical properties.
- F. Product Test Reports: For the following:
 1. Bolts, nuts, and washers including mechanical properties and chemical analysis.
 2. Direct-tension indicators.
 3. Tension-control, high-strength bolt-nut-washer assemblies.
 4. Shop primers.
 5. Nonshrink grout.

1.6 QUALITY ASSURANCE

- A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD.
- B. Installer Qualifications: A qualified installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category CSE.
- C. Shop-Painting Applicators: Qualified according to AISC's Sophisticated Paint Endorsement P2 or SSPC-QP 3, "Standard Procedure for Evaluating Qualifications of Shop Painting Applicators."
- D. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 1. Welders and welding operators performing work on bottom-flange, demand-critical welds shall pass the supplemental welder qualification testing, as required by AWS D1.8. FCAW-S and FCAW-G shall be considered separate processes for welding personnel qualification.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.

1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.
- B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.
1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
 2. Clean and relubricate bolts and nuts that become dry or rusty before use.
 3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F 1852 fasteners and for retesting fasteners after lubrication.

1.8 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

PART 2 - PRODUCTS

2.1 STRUCTURAL-STEEL MATERIALS

- A. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so postconsumer recycled content plus one-half of preconsumer recycled content is not less than the following:
1. W-Shapes: 60 percent
 2. Channels, Angles: 60 percent
 3. Plate and bar: 25 percent
- B. W-Shapes: ASTM A 992.
- C. Channels, Angles: ASTM A 36.
- D. Plate and Bar: ASTM A 36.
- E. Cold-Formed Hollow Structural Sections: ASTM A 500, Grade C, structural tubing.
- F. Welding Electrodes: Comply with AWS requirements.

2.2 BOLTS, CONNECTORS, AND ANCHORS

- A. General: Provide hot dip zinc coating on fasteners used at exterior locations.

- B. High-Strength Bolts, Nuts, and Washers: ASTM A 325 Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade C, heavy-hex carbon-steel nuts; and ASTM F 436, Type 1, hardened carbon-steel washers.
1. Direct-Tension Indicators: ASTM F 959, Type 325, compressible-washer type with plain finish. If corrosion-resisting (weathering) steel is used, change Type 1 bolts and washers to Type 3 and Grade DH nuts to Grade DH3 (Class 10S to Class 10S3) in first paragraph below. If using bolts in first paragraph below for some connections and ASTM A 325 (ASTM A 325M) bolts in paragraph above for others, indicate location of each on Drawings. Retain option below if applicable.
- C. Headed Anchor Rods: ASTM F 1554, Grade 36 straight.
1. Nuts: ASTM A 563 heavy-hex carbon steel.
 2. Plate Washers: ASTM A 36/A 36M carbon steel.
 3. Washers: ASTM F 436, Type 1, hardened carbon steel.
 4. Finish: Hot-dip zinc coating, ASTM A 153, Class C
- D. General Use Bolts: ASTM A307, Grade A hexagon head type.
- E. Clevises and Turnbuckles: Made from cold-finished carbon steel bars, ASTM A 108, Grade 1035.

2.3 PRIMER

- A. Primer: Comply with Division 09 Section "Painting."
- B. Primer: SSPC-Paint 23, latex primer.
- C. Primer: Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.
- D. Galvanizing Repair Paint: ASTM A 780.

2.4 GROUT

- A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time. Product shall have the following characteristics:
1. Be capable of producing a flowable grouting material having no drying shrinkage or settlement at any age.
 2. Compressive strength (2" cubes) of a minimum 5,000 psi at age seven days and 7,500 psi at age 28 days.

2.5 FABRICATION

- A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and AISC 360.
 - 1. Camber structural-steel members where indicated.
 - 2. Fabricate beams with rolling camber up.
 - 3. Identify high-strength structural steel according to ASTM A 6/A 6M and maintain markings until structural steel has been erected.
 - 4. Mark and match-mark materials for field assembly.
 - 5. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.
- B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.
 - 1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.
- C. Bolt Holes: Cut, drill, or punch standard bolt holes perpendicular to metal surfaces.
- D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.
- E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP 2, "Hand Tool Cleaning".
- F. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel framing members.
 - 1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.
 - 2. Baseplate Holes: Cut, drill, or punch holes perpendicular to steel surfaces.

2.6 SHOP CONNECTIONS

- A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
 - 1. Joint Type: Pretensioned.
- B. Weld Connections: Comply with AWS D1.1/D1.1M and AWS D1.8 for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

2.7 SHOP PRIMING

- A. Shop prime steel surfaces except the following:

1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of **2 inches (50 mm)**.
 2. Surfaces to be field welded.
 3. Surfaces to be high-strength bolted with slip-critical connections.
 4. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).
 5. Galvanized surfaces.
- B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:
1. SSPC-SP 2, "Hand Tool Cleaning."
 2. SSPC-SP 3, "Power Tool Cleaning."
 3. SSPC-SP 7/NACE No. 4, "Brush-Off Blast Cleaning."
 4. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."
 5. SSPC-SP 14/NACE No. 8, "Industrial Blast Cleaning."
 6. SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 7. SSPC-SP 10/NACE No. 2, "Near-White Blast Cleaning."
 8. SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning."
 9. SSPC-SP 8, "Pickling."
- C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of **1.5 mils (0.038 mm)**. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.
1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
 2. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.
- D. Painting: Prepare steel and apply a one-coat, nonasphaltic primer complying with SSPC-PS Guide 7.00, "Painting System Guide 7.00: Guide for Selecting One-Coat Shop Painting Systems," to provide a dry film thickness of not less than **1.5 mils (0.038 mm)**.

2.8 GALVANIZING

- A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel according to ASTM A 123/A 123M.
1. Fill vent and drain holes that will be exposed in the finished Work unless they will function as weep holes, by plugging with zinc solder and filing off smooth.
 2. Galvanize flashing attached to structural-steel frame and located in exterior walls.

2.9 SOURCE QUALITY CONTROL

- A. Testing Agency: Owner will engage an independent testing and inspecting agency to perform shop tests and inspections and prepare test reports.

1. Provide testing agency with access to places where structural-steel work is being fabricated or produced to perform tests and inspections.
- B. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.
- C. Bolted Connections: Shop-bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- D. Welded Connections: In addition to visual inspection, shop-welded connections will be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
 1. Liquid Penetrant Inspection: ASTM E 165.
 2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
 3. Ultrasonic Inspection: ASTM E 164.
 4. Radiographic Inspection: ASTM E 94.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify, with steel Erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.
 1. Prepare a certified survey of bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated.

3.3 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.
- B. Base Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.
 2. Weld plate washers to top of baseplate.
 3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
 4. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
- C. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."
- D. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
1. Level and plumb individual members of structure.
 2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.
- E. Splice members only where indicated.
- F. Do not use thermal cutting during erection.

3.4 FIELD CONNECTIONS

- A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
1. Joint Type: Pretensioned.
- B. Weld Connections: Comply with AWS D1.1/D1.1M and AWS D1.8 for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
 2. Remove backing bars or runoff tabs where indicated, back gouge, and grind steel smooth.

3.5 PREFABRICATED BUILDING COLUMNS

- A. Install prefabricated building columns to comply with AISC 360, manufacturer's written recommendations, and requirements of testing and inspecting agency that apply to the fire-resistance rating indicated.

3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to inspect field welds and high-strength bolted connections.
- B. Bolted Connections: Bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- C. Welded Connections: Field welds will be visually inspected according to AWS D1.1/D1.1M.
 - 1. In addition to visual inspection, field welds will be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
 - a. Liquid Penetrant Inspection: ASTM E 165.
 - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
 - c. Ultrasonic Inspection: ASTM E 164.
 - d. Radiographic Inspection: ASTM E 94.
- D. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

3.7 REPAIRS AND PROTECTION

- A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing and repair galvanizing to comply with ASTM A 780.
- B. Touchup Painting: Immediately after erection, clean exposed areas where primer is damaged or missing and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - 1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.
- C. Touchup Painting: Cleaning and touchup painting are specified in Division 09 painting Sections.

END OF SECTION

SECTION 099100 – PAINTING**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specifications Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes surface preparation and field painting, staining or refinishing of the following:
 - 1. Exposed exterior items and surfaces.
 - 2. Exposed interior items and surfaces.
 - 3. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
 - 4. Painting of shop-primed metal surfaces.
- B. Paint/stain exposed surfaces, except where the paint/stain schedules indicate that a surface or material is not to be painted/stained or is to remain natural. If the paint schedules do not specifically mention an item or a surface, paint the item or surface the same as similar adjacent materials or surfaces whether or not schedules indicate colors. If the schedules do not indicate color or finish, the Owner will select from standard colors and finishes available.
 - 1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
 - 1. Prefinished items include the following factory-finished components:
 - a. Acoustical wall panels.
 - b. Stainless steel items.
 - c. Finished mechanical and electrical equipment.
 - d. Light fixtures.
 - e. Distribution cabinets.
 - 2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
 - a. Furred areas.
 - b. Ceiling plenums.

- c. Utility tunnels.
 - d. Pipe spaces.
 - e. Duct shafts.
3. Finished metal surfaces include the following:
- a. Anodized aluminum.
 - b. Stainless steel.
 - c. Chromium plate.
 - d. Copper.
 - e. Bronze and brass.
4. Operating parts include moving parts of operating equipment and the following:
- a. Valve and damper operators.
 - b. Linkages.
 - c. Sensing devices.
 - d. Motor and fan shafts.
5. Labels: Do not paint over Underwriters Laboratories (UL), Factory Mutual (FM), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.
- D. Related Sections include the following:
- 1. Division 05 Section "Metal Fabrications" for shop priming ferrous metal.
 - 2. Division 07 Section "Flashing and Trim."
 - 3. Division 08 Section "Steel Doors and Frames" for shop priming steel doors and frames.
 - 4. Division 09 Section "Gypsum Board" for surface preparation for gypsum board.
 - 5. Division 09 Section "Anti-Graffiti Coatings."
 - 6. Divisions 22, 23 and 26: Painting of mechanical and electrical work is specified in Divisions 22, 23 and 26, respectively.

1.3 SPECIAL REQUIREMENTS

- A. Unauthorized removal or disconnecting of electrical fixtures, switches, or control devices may result in additional electrical work to comply with energy regulations of governing agencies. Contractor shall be financially responsible with no additional cost to the Owner for additional electrical work due to unauthorized removal or disconnecting of electrical fixtures, switches, or control devices.

1.4 DEFINITIONS

- A. General: Standard coating terms defined in ASTM D 16 apply to this Section.
1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
 2. Eggshell refers to low-sheen finish with a gloss range between 5 and 20 when measured at a 60-degree meter.
 3. Satin refers to low-sheen finish with a gloss range between 15 and 35 when measured at a 60-degree meter.
 4. Semigloss refers to medium-sheen finish with a gloss range between 30 and 65 when measured at a 60-degree meter.
 5. Full gloss refers to high-sheen finish with a gloss range more than 65 when measured at a 60-degree meter.

1.5 SUBMITTALS

- A. Product Data: For each paint system specified. Include primers.
1. Material List: Provide an inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
 2. Manufacturer's Information: Provide manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material proposed for use.
 3. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).
- B. Samples for Verification: Of each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.
1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.
 2. Provide a list of materials and applications for each coat of each sample. Label each sample for location and application.

1.6 QUALITY ASSURANCE

- A. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to that indicated for this Project with a record of successful in-service performance.
- B. Source Limitations: Obtain block fillers, primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the Project Site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label, and the following information:
1. Product name or title of material.
 2. Product description (generic classification or binder type).
 3. Manufacturer's stock number and date of manufacture.
 4. Contents by volume, for pigment and vehicle constituents.
 5. Thinning instructions.
 6. Application instructions.
 7. Color name and number.
 8. VOC content.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.
1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

1.8 PROJECT CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 and 90 deg F.
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 and 95 deg F.
- C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.
- D. Protection:
1. Cover or otherwise protect finished work of other trades, work not to be painted concurrently, landscaping, and adjacent property from damage.
 2. When not in use, store paints in designated areas. Keep containers closed. At end of day's work, remove empty containers, paint soaked rags, and debris. Vent fumes. Take precautions to prevent fire.
- E. Sequencing, Scheduling:

1. Coordinate removal and replacement of hardware, electrical fixtures and trim, and related work of other Sections.
2. Stain, prime, back paint, and pre-finish items before installation as required.

F. Cleaning and Disposal:

1. Do not use Project plumbing fixtures or piping systems for:
 - a. Cleaning painting equipment and utensils.
 - b. Disposal of waste from cleaning or disposal of paints.

PART 2 - PRODUCTS

2.1 SCHEDULED PAINT SYSTEMS

- A. Scheduled Paint Systems, Basis of Design: Paint systems are scheduled in the "Paint Systems Schedule" Article at the end of Part 3; for the purpose of establishing a basis of quality, paint products are based on the following manufacturer:
1. Sherwin Williams (typical paint system).
 - a. Subject to compliance with requirements, provide products by the specified manufacturer or equivalent products as approved by Interior Designer by one of the following:
 - 1) Dunn-Edwards.
 - 2) Fuller O'Brien Paints.
 - 3) ICI Sinclair.
 - 4) Tnemec.
 - 5) Or approved equal.

2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, undercoats, and finish-coat materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
1. For each coat in a paint system, provide products recommended in writing by manufacturer of top coat for use in paint system and on substrate indicated.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.
- C. Colors: Provide color selections as indicated on Interior Design Drawings. Colors to be factory mixed and to match approved samples.
- D. Mixing:
1. Follow manufacturer's printed recommendations.
 2. Mix all paints thoroughly prior to application.
 3. Mix only in Inspector's presence in assigned spaces.
 4. Except where thinning is specifically recommended by manufacturer, do not thin products.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with paint application requirements.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
1. Concrete: 12 percent.
 2. Masonry (Clay and CMU): 12 percent.
 3. Wood: 15 percent.
 4. Portland Cement Plaster: 12 percent.
 5. Gypsum Board: 12 percent.
- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- E. Proceed with coating application only after unsatisfactory conditions have been corrected.
1. Application of coating indicates acceptance of surfaces and conditions.
- F. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
1. Notify the Architect about anticipated problems using the materials specified over substrates primed by others.

3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and painting.
1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved. Remove surface-applied protection.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
1. Electrical Items: Remove only switch and outlet cover plates and similar items that do not require disconnecting wiring. Do not disconnect wiring or remove electrical fixtures, switches, or control devices unless otherwise indicated on Electrical Drawings.
 - a. Contractor may be subject to additional costs due to unauthorized removal of items. Refer to Part 1 Article "Special Requirements."
- C. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning.
1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- D. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
1. Provide barrier coats over incompatible primers or remove and reprime.
 2. Cementitious Materials: Prepare concrete, concrete masonry block, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
 - a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.

- b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. All testing shall be performed and certified by a representative of the paint manufacturer. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's written instructions.
 - c. Clean concrete floors to be painted with a 5 percent solution of muriatic acid or other etching cleaner. Flush the floor with clean water to remove acid, neutralize with ammonia, rinse, allow to dry, and vacuum before painting.
 - d. At concrete and concrete block surfaces, fill cracks and defects with cement grout; match surface texture.
 3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
 - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
 - b. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, paneling, window sills and trim.
 - c. When transparent finish is required, backprime with spar varnish.
 - d. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on backside.
 - e. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.
 4. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with the Steel Structures Painting Council's (SSPC) recommendations.
 - a. Blast steel surfaces clean as recommended by paint system manufacturer and according to requirements of SSPC-SP 10.
 - b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
 - c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with the same primer as the shop coat.
 5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
 6. Aluminum Substrates: Remove loose surface oxidation.
 7. Plastic Trim Fabrication Substrates: Remove dust, dirt, and other foreign material that might impair bond of paint to substrates.

- E. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
 - 1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
 - 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
 - 3. Use only thinners approved by paint manufacturer and only within recommended limits.
- F. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.
- G. Drywall: Fill any cracks or defects with drywall joint compound or spackle. Sand any rough spots smooth. Do not raise nap on paper covering.

3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
 - 1. Paint colors, surface treatments, and finishes are indicated in the schedules.
 - 2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
 - 3. Provide finish coats that are compatible with primers used.
 - 4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convector covers, covers for finned-tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
 - 5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
 - 7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
 - 8. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
 - 9. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.
 - 10. Sand lightly between each succeeding enamel or varnish coat.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
 2. Omit primer on metal surfaces that have been shop primed and touchup painted.
 3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.
- C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for the type of material applied. Use brush of appropriate size for the surface or item being painted.
 2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
 3. Spray Equipment: Use airless spray equipment with orifice size as recommended by the manufacturer for the material and texture required.
- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.
- E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items as identified in the appropriate section.
- F. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.
- G. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- H. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

3.4 SPECIAL REQUIREMENTS

- A. All paint which is skinned over or dirty shall be strained immediately through fine cheese cloth to remove dirt, grit, skins, etc., before using.
- B. When painting around glass on interior side of windows, paint shall extend out on glass approximately 1/16". This shall be done in a neat and workmanlike manner. Painting work, if done beyond this point, shall be removed flush with putty or wood stops and be repainted.
- C. All workers on the job site are to be dressed in painter's whites with caps and OSHA approved footwear.

3.5 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site.
 - 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

3.6 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Owner.
- B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
 - 1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.
- C. Correction of Defective Work:
 - 1. Repair abraded, damaged or incomplete paint surfaces by methods acceptable to Owner. Spot repairs to be well-blended into adjacent work. For large repairs, re-coat entire plane or building element in which damaged area occurs.
 - 2. Defaces surfaces of work not to be painted shall be cleaned and their original finish restored.

3.7 PAINT SYSTEMS SCHEDULE

A. Interior Paint Finishes

SURFACE		FINISH SCHEDULE DESIGNATION		COATS	MANUFACTURER'S DESIGNATION	
(1)	Gypsum Drywall (Textured)	P12.A	Flat, Latex	First Coat Second Coat Third Coat	B28W8000 B30W2600 B30W2600	PVA PRIMER & SEALER PM 200 ZERO PM 200 ZERO
		P12.B	Semi-Gloss Latex	First Coat Second Coat Third Coat	B28W8000 B31W2600 B31W2600	PVA PRIMER & SEALER PM 200 ZERO PM 200 ZERO
		P12.C	Eggshell Enamel Latex	First Coat Second Coat Third Coat	B28W8000 B26W2600 B26W2600	PVA PRIMER & SEALER PM 200 ZERO PM 200 ZERO
		P12.D	Flat	Coat to Cover	A21W851	ECOSELECT ZERO VOC
		P12.E		First Coat Second Coat	B51W8020 ZFX	PREPRITE PROBLOCK Zolatone – Polomyx Airless Natural Stone Collection
(2)	Wood	P13.A	Semi-Gloss Latex		B51W8020	PREPRITE PROBLOCK SOLO 100% ACRYLIC SOLO 100% ACRYLIC
		P13.B	Eggshell Enamel, Latex	First Coat Second Coat Third Coat	B51W8020	PREPRITE PROBLOCK SOLO 100% ACRYLIC SOLO 100% ACRYLIC
		P13.C	Lacquer Velvet	Stain First Coat Second Coat Third Coat	A49 TLS2153	WOOD CLASSICS STAIN TRINITY 275 VOC LACQUER SANDING SEALER
		P13.D	Lacquer Semi-Gloss	Stain First Coat Second Coat Third Coat	A49 TLS2153 TLC TLC	WOOD CLASSICS STAIN TRINITY 275 VOC LACQUER SANDING SEALER TRINITY 275 VOC LACQUER TRINITY 275 VOC LACQUER
		P13.E	Lacquer Gloss	Stain First Coat Second Coat Third Coat	A49 TLS2153 TLC TLC	WOOD CLASSICS STAIN TRINITY 275 VOC LACQUER SANDING SEALER TRINITY 275 VOC LACQUER TRINITY 275 VOC LACQUER
		P13.F	Varnish Velvet	Stain First Coat Second Coat Third Coat	1700 1806 1806 1806	WOODPRIDE WOODPRIDE WOODPRIDE WOODPRIDE
		P13.G	Varnish Semi-Gloss	Stain First Coat Second Coat Third Coat	1700 1806 1806 1806	WOODPRIDE WOODPRIDE WOODPRIDE WOODPRIDE
		P13.I	Fire Retardant Intumescent Paint (Sheen as selected by Owner)	First Coat Second Coat Third Coat		Water base sealer as recommended by manufacturer Flame Coat or Bar Flame or approved equal
		(3)	Ferrous Metal	P14.A	Flat Latex	First Coat Second Coat Third Coat

SURFACE		FINISH SCHEDULE DESIGNATION		COATS	MANUFACTURER'S DESIGNATION	
		P14.B	Semi-Gloss Latex	First Coat Second Coat Third Coat	B66-310 B31 Series	PRO-CRYL UNIVERSAL PRIMER SOLO 100% ACRYLIC SOLO 100% ACRYLIC
		P14.C	Eggshell Latex	First Coat Second Coat Third Coat	B66-310 B20 Series	PRO-CRYL UNIVERSAL PRIMER SOLO 100% ACRYLIC SOLO 100% ACRYLIC
(4)	Galvanized Metal/Aluminum	P15.A	Flat Latex	First Coat Second Coat Third Coat	B66-310 A74 Series	PRO-CRYL UNIVERSAL PRIMER SOLO 100% ACRYLIC SOLO 100% ACRYLIC
		P15.B	Semi-Gloss Latex	First Coat Second Coat Third Coat	B66-310 B31 Series	PRO-CRYL UNIVERSAL PRIMER SOLO 100% ACRYLIC SOLO 100% ACRYLIC
		P15.C	Eggshell Latex	First Coat Second Coat Third Coat	B66-310 B20 Series	PRO-CRYL UNIVERSAL PRIMER SOLO 100% ACRYLIC SOLO 100% ACRYLIC
(5)	Plaster, Concrete, Brick, Stucco	P16.A	Flat Latex	First Coat Second Coat Third Coat	A24W300 B30 Series B30 Series	LOXON ACRYLIC PRIMER PROMAR 200 ZERO PROMAR 200 ZERO
		P16.B	Semi-Gloss Latex	First Coat Second Coat Third Coat	A24W300 B31 Series B31 Series	LOXON ACRYLIC PRIMER PROMAR 200 ZERO PROMAR 200 ZERO
		P16.C	Eggshell Latex	First Coat Second Coat Third Coat	A24W300 B20 Series B20 Series	LOXON ACRYLIC PRIMER PROMAR 200 ZERO PROMAR 200 ZERO
(6)	Concrete Block	P17.A	Flat latex	First Coat Second Coat Third Coat	B42W46 B30 Series B30 Series	HEAVY DUTY BLOCK FILLER PROMAR 200 ZERO PROMAR 200 ZERO
		P17.B	Semi-Gloss Latex	First Coat Second Coat Third Coat	B42W46 B31 Series B31 Series	HEAVY DUTY BLOCK FILLER PROMAR 200 ZERO PROMAR 200 ZERO
		P17.C	Eggshell Latex	First Coat Second Coat Third Coat	B42W46 B20 Series B20 Series	HEAVY DUTY BLOCK FILLER PROMAR 200 ZERO PROMAR 200 ZERO
(7)	Acoustical Ceiling Tile/Plaster	P18.A	Latex	Coat to Cover	A21W851	ECOSELECT ZERO VOC
(8)	Ceramic Tile like Finishes	P19.A		First Coat Second Coat Third Coat	B51W8050 B73 Series B73 Series	ADHESION PRIMER PRO INDUSTRIAL ACRYLIC WATER-BASED EPOXY
(9)	Ceiling and Wall w/misc. Pipes & Conduit, attached and Trusses & Beams w/Spray-on Fire Insulation	P20.A		Coat to Cover	B42 Series	DRYFALL White, Black and Various Tintable Colors

B. Exterior Paint Finishes

SURFACE		FINISH SCHEDULE DESIGNATION		COATS	MANUFACTURER'S DESIGNATION	
(1)	Plaster, Concrete	P50.A	Flat, Acrylic	First Coat Second Coat Third Coat	A24W300 A6 Series A6 Series	LOXON ACRYLIC PRIMER A-100 Flat A-100 Flat
		P50.B	Low Sheen Enamel Acrylic	First Coat Second Coat Third Coat	A24W300 A21Series A21Series	LOXON ACRYLIC PRIMER A-100 Low Sheen A-100 Low Sheen
		P50.C	Elastomeric (Smooth)	First Coat Second Coat "Spray Application"	A24w300 A5W400 SERIES	LOXON ACRYLIC PRIMER CONFLEX XL
		P50.D	Elastomeric (Medium Aggregate)	First Coat Second Coat Third Coat	A24W300 A5W810 A5W810	LOXON ACRYLIC PRIMER CONFLEX XL TEXTURED MED. CONFLEX XL TEXTURED MED.
(2)	Concrete Block Masonry	P51.A	Flat, acrylic	First Coat Second Coat Third Coat	B42W46 A6 Series A6Series	HEAVY DUTY BLOCK FILLER A-100 Flat A-100 Flat
		P51.B	Elastomeric Smooth	First Coat Second Coat Third Coat	A24W300 A5W400 Series	LOXON ACRYLIC PRIMER CONFLEX XL CONFLEX XL
		P51.C	Elastomeric (Medium Aggregate)	First Coat Second Coat Third Coat	A24W300 A5W810 A5W810	LOXON ACRYLIC PRIMER CONFLEX XL TEXTURED MED. CONFLEX XL TEXTURED MED.
		P51.D	Elastomeric (Coarse Aggregate)	First Coat Second Coat Third Coat	A24W300 A5W820 A5W820	LOXON ACRYLIC PRIMER CONFLEX XL TEXTURED COURSE CONFLEX XL TEXTURED COURSE
		P51.E	Clear Water Repellent	1 Coat	A10T7	LOXON 7% SILOXANE WATER REPELLANT
(3)	Wood	P53.A	Flat Acrylic	First Coat Second Coat Third Coat	B42W8041 A6 Series A6 Series	EXT. LATEX WOOD PRIMER A-100 Flat A-100 Flat
		P53.B	Gloss Acrylic	First Coat Second Coat Third Coat	B42W8041 A8 Series A8 Series	EXT. LATEX WOOD PRIMER A-100 Gloss A-100 Gloss
		P53.C	Low Sheet Enamel Acrylic	First Coat Second Coat Third Coat	B42W8041 A21 Series A21 Series	EXT. LATEX WOOD PRIMER A-100 Low Sheen A-100 Low Sheen
		P53.D	Flat, Stain Water Base Semi- Transparent	First Coat Second Coat	A15T5 A15T5	WOODSCAPES SEMI- TRANSPARENT STAIN
		P53.E	Flat, Stain Opaque	First Coat Second Coat	2600 2600	WOODPRIDE WOODPRIDE
		P53.F	Varnish Clear Gloss	First Coat Second Coat Third Coat	1808 1808 1808	WOODPRIDE WOODPRIDE WOODPRIDE
		P53.G	Stain and Varnish	First Coat Second Coat Third Coat	1700 1808 1808	WOODPRIDE WOODPRIDE WOODPRIDE

SURFACE		FINISH SCHEDULE DESIGNATION		COATS	MANUFACTURER'S DESIGNATION	
(4A)	Ferrous Metal, unless otherwise indicated	P55.D	Gloss High Perform..	First Coat Second Coat Third Coat	B66-310 B66-700 B66-700	PRO-CRYL UNIVERSAL PRIMER ACROLON 100POLYURETHANE ACROLON 100POLYURETHANE
		P55.E	Semi-Gloss Light Industrial	First Coat Second Coat Third Coat	B66-310 B66-650 B66-650	PRO-CRYL UNIVERSAL PRIMER PRO INDUSTRIAL ACRYLIC PRO INDUSTRIAL ACRYLIC
(4B)	Ferrous Metal (Exposed Structural Members)		Gloss High Perform.	First Coat Second Coat Third Coat		Primer as recommended by Manufacturer PITTHANE ULTRA 95-812 SERIES PITTHANE ULTRA 95-812 SERIES
			Matte High Perform.	First Coat Second Coat Third Coat		Primer as recommended by Manufacturer PITT-GUARD 95-245 SERIES PITT-GUARD 95-245 SERIES
(5)	Galvanized Metal & Aluminum	P56.C	Gloss High Perform.	First Coat Second Coat Third Coat	B66-310 B66-700 B66-700	PRO-CRYL UNIVERSAL PRIMER ACROLON 100POLYURETHANE ACROLON 100POLYURETHANE
		P56.D	Semi-Gloss Light Industrial	First Coat Second Coat Third Coat	B66-310 B66-650 B66-650	PRO-CRYL UNIVERSAL PRIMER PRO INDUSTRIAL ACRYLIC PRO INDUSTRIAL ACRYLIC
		P56.E	Gloss Light Industrial	First Coat Second Coat Third Coat	B66-310 B66-600 B66-600	PRO-CRYL UNIVERSAL PRIMER PRO INDUSTRIAL ACRYLIC PRO INDUSTRIAL ACRYLIC
(6)	Aluminum	P58.A	Flat, Acrylic	First Coat Second Coat Third Coat	B66-310 A74 Series A74 Series	PRO-CRYL UNIVERSAL PRIMER SOLO 100% ACRYLIC SOLO 100% ACRYLIC
		P58.B	Semi-Gloss Light Industrial	First Coat Second Coat Third Coat	B66-310 B66-650 B66-650	PRO-CRYL UNIVERSAL PRIMER PRO INDUSTRIAL ACRYLIC PRO INDUSTRIAL ACRYLIC

END OF SECTION

SECTION 260100 – ELECTRICAL SCOPE AND GENERAL REQUIREMENTS

PART I - GENERAL

1.1 GENERAL REQUIREMENTS

- A. All work under Section 26 01 00, Electrical Scope and General Requirements Specifications, are subject to the General, Supplementary, Special Conditions and other Division I Specification Sections preceding this section. This Contractor will be responsible for and govern by all requirements. Drawings indicate the general arrangement of the electrical layout and work included. The Contractor will follow Drawings in laying-out and checking of Drawings of other trades to verify locations and spaces in which work will be installed.

1.2 SCOPE

- A. This portion of the work includes furnishing of all labor and materials necessary for a complete wiring system to outlets and all equipment shown on the Drawings or covered by this section of the Specifications. In general, the work includes the following:
1. Complete system of branch circuit wiring and equipment including all wiring devices and plates on all outlets.
 2. A new lighting fixture system complete with lamps as shown on Plans including all appurtenances as required.
 3. Raceways, wiring, fused disconnect switches, etc., for equipment covered by other sections of these Specifications.
 4. All hangers, anchors, sleeves, chases and supports for fixtures, electrical equipment and materials including earthquake bracing.

1.3 SITE VISITATIONS

- A. The Contractor will carefully examine the site and existing buildings, compare the Drawings with the existing electrical installations and thoroughly familiarize himself with all existing conditions within the scope of this work. By the act of submitting a bid, the Contractor will be deemed to have made such examination, accepted such conditions and to have made allowance in preparing his figure.

1.4 RULES AND REGULATIONS

- A. All work and materials shall be in full accordance with the latest rules and regulations of the following:
1. California Electrical Code, 2019 Edition
 2. California Building, Mechanical and Plumbing Codes
 3. California Code of Regulations
 4. California State Fire Marshal Rules
- B. Before the Final Certificate of Payment will be issued, the Contractor shall deliver to the Owner all Certificates, Permits, Record Drawings and Instructions/Parts Manuals.

- C. Nothing in these Plans and Specifications is to be construed to permit work not conforming to these codes.

1.5 MATERIALS AND SUBSTITUTIONS

- A. All equipment and materials shall be new and UL (Underwriters Laboratories) approved and of the best quality. When specific trade names are used in connection with materials they are mentioned as standards but, this implies no right upon the part of the Contractor to substitute other materials or methods without prior approval.
- B. When approval is given for use of equipment differing from that shown on the Drawings regarding foundations, space of piping, duct work, wiring, insulation, etc., changes required to accommodate such differences shall be accomplished at no cost to the Owner.
- C. This Contractor shall order equipment in a timely manner to prevent any delays in the construction schedule and he shall bear any penalty by vendors to meet schedules.
- D. Submittals:
 - 1. Shop Drawings and Product Data: Within ten days after an award of this contract, but prior to manufacture or installation of any equipment, prepare complete Shop Drawings and Brochures for materials/equipment as required by each section of the Specification. Submit eight complete sets for review.
 - 2. Prior to submission of the Shop Drawings and Project Data review and certify that they meet the Contract Documents and conform to existing field conditions. Field verify installation methods, voltage requirements and coordinate with other trades.
 - 3. Verify all dimensional information to ensure proper clearance installation of equipment. Check all materials and equipment after arrival on the jobsite and verify compliance with the Contract Documents. A minimum period of two weeks, exclusive of transmittal time, will be required each time Shop Drawings and/or Brochures are submitted or resubmitted for review. This time shall be considered by the Contractor when scheduling a submittal date.
 - 4. Review of Shop Drawings and Brochures shall not relieve the Contractor of responsibility for dimensions and/or errors that may be contained therein or deviations from the Contract Documents requirements. It shall be clearly understood that noting of some errors, but overlooking others, does not grant the Contractor permission to proceed in error. Regardless of any information contained in the Shop Drawings and Brochures the requirements of the Contract Documents shall govern and are not waived or superseded in any way by the review of the Shop Drawings and Brochures.
 - 5. Certifications shall be written or in the form of rubber stamp impressions as follows:

I hereby certify that these Shop Drawings and/or Brochures have been checked prior to submittal, and that it complies in all respects with the requirements of the Contract Drawings, Specifications and existing field conditions for this project.

(Name of Contractor)

Signed _____
Title _____ Date _____

6. Observe the following rules when submitting the Shop Drawings or Brochures:
 - a) Each Shop Drawing shall indicate in the lower right-hand corner and each brochure shall indicate on the front cover the following:
 - 1) Title of the sheet or brochure
 - 2) Name and location of the building
 - 3) Names of the Architect
 - 4) Name of the Electrical Engineer
 - 5) Name of Contractor
 - 6) Subcontractor's Manufacturer, Supplier and Vendor
 - 7) Date of submittal
 - 8) Date of correction and revision.
 - 9) Unless the above information is included, the submittal will be returned for resubmittal.
 - b) Shop Drawings shall be done in legible scale and shall contain sufficient plans, elevations, sections and isometrics clearly describing the equipment or apparatus and the Engineer/Draftsmen skilled in this type of work. Shop Drawings shall be drawn to at least 1/4" = 1'-0" scale.
7. The manufacturers shall publish brochures to be submitted which contain complete and detailed engineering and dimensional information. Brochures submitted shall contain only information relevant to the particular equipment or materials to be furnished. The Contractor shall not submit catalogs that describe several different items in addition to those items to be used unless all irrelevant information is marked out or unless each manufacturer is identified and submitted separately.

1.6 GENERAL COORDINATION

- A. The Drawings indicate diagrammatically the desired location or arrangement of conduit runs, outlets, equipment, etc., and are to be followed as closely as possible. It shall be the Contractor's responsibility to verify and coordinate the location of all outlets and raceways with other trades.

1.7 CUTTING, PATCHING AND MATCHING

- A. This Contractor shall do all cutting required for the proper installation of his work and shall repair any damage done by himself or his workmen. The Contractor shall coordinate with that of other parties.
- B. Wherever possible, work shall be done in a concealed and neat workmanlike manner requiring the least amount of cutting of studs, plates and woodwork. Such cutting or notching is allowed only after consultation with and by permission of the Engineer.
- C. All patching shall be of the same materials, workmanship and finish as existing and shall accurately match all surrounding work. All work shall be done under the Architect's instructions and when required by the trade that did the original work.

1.8 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

- A. The Engineer's decision will be final on interpretation of the Drawings and Specifications. Whenever the words "AS MAY BE DIRECTED", "SUITABLE" or "APPROVED EQUAL" or other words of similar intent and meaning are used inferring that judgment is to be exercised, it is understood that it is the judgment of the Engineer referred to.

1.9 CLEANING OF EQUIPMENT, MATERIALS AND PREMISES

- A. All electrical equipment shall be thoroughly cleaned of dirt, rust, cement, plaster, etc., and all cracks and corners scraped out clean. Surfaces to be painted shall be carefully cleaned of grease and oil spots and left smooth and clean and in proper condition to receive paint finish.

1.10 RECORD DRAWINGS

- A. At the beginning of the project, one full-sized print of each applicable Drawing will be issued to the Contractor for use in preparing Record Drawings. "RECORD" conditions shall be recorded on the prints as the project progresses. Upon completion of the work, the Contractor shall forward it to the Architects' Office after first securing the Inspector's verification by signature.

1.11 EARTHQUAKE RESTRAINT

- A. All electrical equipment shall have a means to prohibit excessive motion during an earthquake. Equipment that vibrates during normal operation shall have isolators with mechanical stops. All transformers are considered to vibrate during operation.
- B. All electrical equipment and connections shall be designed to resist lateral seismic forces equal to value shown on Drawings of equipment weight with allowable working code capacity increased by 1/3 or 1.5 times the same value for the weight yield capacity. Connections shall be the same except the 1/3 increase will not be allowed.

1.12 IDENTIFICATION

A. Conductors:

1. All power and signal conductors shall be identified in accordance with the following schedule:
 - a) 120/208 Volts, 3-phase, 4-wire Wye: Red-Black-Blue, Neutral White
 - b) 120/240 Volts, 3-phase, 4-wire Delta: Black-Blue for single-phase, Orange for 3-phase stinger, Neutral White
 - c) 480/277 Volts, 3-phase, 4-wire Wye: Yellow-Brown-Purple-, Neutral Grey Bond or grounding conductor (GWG): Green
 - d) Special system conductors shall be color coded and labeled
2. Brady Labels shall be used to identify terminals and destination of feeders, branch circuits, signal and control circuits, etc., at all terminations and junction boxes and shall be coordinated with the nameplates in all boxes and equipment.
3. All terminals in the switchboards, panels, relays, switches, devices, starter terminals, etc., shall have Brady Labels for identification to identify both ends of all wiring. Wires #8 and smaller to be terminated on terminal strips squared-type 9080K with white marking strip and screw lugs for wire size.

B. Nameplates: The Contractor shall furnish and install 1" x 3" x 3/32" thick laminated black Bakelite nameplates with a white core, unless specifically shown as red with a white core, engraved to produce white letters on black background for all items of electrical equipment including 2-pole and 3-pole circuit breakers, panelboards, starters, relays, time switches and disconnect switches. They shall screw them in place.

C. Panels: Panels having single-pole circuit breakers shall be provided with typed schedules mounted in welded metal holders behind plastic.

D. Devices: All devices shall have their branch circuit identified on the back side of device plate with a permanent type black marker, i.e., CT A-21.

1.13 GUARANTEE

- A. This Contractor agrees to replace or repair to the satisfaction of the Owner, any part of the installation that may fail due to defective material and/or workmanship, or failure to follow Plans and Specifications for one year after final acceptance. He shall further obtain from the manufacturers of special equipment (i.e., control systems) their respective guarantees and service manuals and deliver to Owner.

PART 2 - PRODUCTS

2.1 RACEWAYS

- A. Unless specifically shown otherwise, this Contractor shall furnish and install a complete steel conduit system above grade for all wiring, including control and signal wiring.
- B. All conduits shall be rigid threaded hot dipped galvanized type.
- C. Seal-type flexible conduit shall be used in lengths not greater than 18" at motors and other machinery to prevent the transmission of vibration. All flexible conduits shall have a copper bond wire either integral or pulled in. Flexible conduit shall be supported at both ends and every 24".
- D. All conduit fittings, locknuts, couplings, elbows, etc., shall be hot dipped galvanized finish with plastic bushings. No competitive type fittings shall be used.

2.2 CONDUCTORS

- A. All conductors shall be delivered to the site in their original unbroken packages plainly marked or tagged as follows: UL Labels, size, kind and insulation of wire, name of the manufacturing company and trade name of the wire.
- B. All conductors to be a minimum of 98% conductivity soft drawn copper, minimum #12 AWG unless shown otherwise. Conductors #8 and larger shall be stranded type "THWN" 600 Volt insulation. Conductors #10 and smaller shall be solid copper "THHN".
- C. All branch circuits, fixture wiring joints, splices and taps for conductors #10 and smaller to be made with "SCOTCHLOCK" connectors.
- D. Two bolt type solderless connectors or T & B "color keyed" compression lugs shall be used on #8 and larger conductors.

2.3 OUTLET BOXES

- A. Outlet boxes for concealed work shall be one-piece pressed steel knock out type with zinc or cadmium coating. Boxes shall not be smaller than 4" square nominal size unless otherwise indicated. Provide extension rings, plaster rings and covers necessary for flush finish.
- B. Bar hangers shall be used to support outlet boxes in stud or furred partitions and ceilings. Attachment screws, devices, etc., shall be of the proper type to secure boxes to metal studs. Use expansion shields to concrete and masonry.
- C. Provide approved knock-out seals on all unused open knock-out holes. Where used for lighting fixtures outlet boxes shall be equipped with fixture studs.

- D. Outlet boxes installed in concrete slabs shall be two-piece concrete boxes not less than 4" nominal size with a minimum depth of 2-1/2".
- E. Surface boxes of cast metal threaded hub-type with suitable gasketed covers shall be used for exposed conduit runs less than 5' above a finished floor or where waterproof boxes are required.

2.4 PULL BOXES AND WIREWAYS

- A. Pull and junction boxes shall be installed as shown to ease the pulling of wire and to comply with NEC requirements.
- B. Wireways to be constructed in accordance with UL 870 for wireways, auxiliary gutters, and associated fittings. Every component including lengths, connectors, and fittings shall be UL listed.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. The layout and installation of electrical work shall be coordinated with the overall construction schedule to prevent delay in completion of the project.
- B. Dimensions and information regarding accurate locations of equipment and structural limitations and finish shall be verified with other sections.
- C. The Drawings do not show all the offsets, bends, special fittings or junction pull boxes necessary to meet job conditions and shall be provided as required.
- D. Electrical equipment, outlets, junction and pull boxes shall be installed in accessible locations, avoiding obstructions, preserving headroom and keeping openings and passageways clear.
- E. Minor adjustments in the locations of equipment shall be made where necessary providing such adjustments do not adversely affect function of the equipment. Major adjustments for the location of equipment shall be previously approved and detailed on the Record Drawings.

3.2 STRUCTURAL FITTINGS

- A. Furnish and install the necessary sleeves, inserts, hangers, anchor bolts and related structural items. Install at the proper time.

3.3 RACEWAYS AND FITTINGS

- A. Surface raceways shall be coordinated with cabinet work. It shall be installed plumb and square with adjacent surfaces.
- B. Minimum size of any conduit for lighting, power and signal shall be 1/2" conduit unless shown otherwise.

- C. All concealed conduits shall be installed in as direct a line as possible between outlets. EMT approved for dry locations with steel plastic bushed set screw fittings. No more than four quarter bends or their equivalent will be allowed between outlets. Feeder conduits shall follow arrangements shown on plans unless a change is authorized. Branch circuit conduits shall in general follow arrangement as shown as far as structural conditions permit. All exposed runs shall parallel buildings, walls or partitions and be supported on Kindorf Hangers to meet Title 24, Part 6, CAC.
- D. In general, all conduits shall be sloping to drain. Bends that place a trap in a conduit shall be avoided. Provide drip fitting as required. Dux-Seal high ends of all underground raceways.
- E. All conduit runs shall be mechanically and electrically continuous from outlet to outlet. Conduit size or type shall not be changed between outlets.
- F. Chrome escutcheon plates shall be used on all conduit penetrating walls, floors or ceilings.
- G. Expansion joints shall be provided at building expansion joints or as required due to length of run or difference in temperatures.
- H. Flexible steel conduits shall be used for short runs not over 24" from motors or other vibrating equipment to junction boxes. Where specifically approved by the Engineer, flexible steel conduit may be used when conditions make the use of another conduit impracticable. Fittings shall be of the screwed wedge type. All flex shall have green copper bond wire. Flex conduits shall be independently suspended.
- I. All fittings that are exposed or in damp areas shall have sealing glands and proper gaskets. Fittings in hazardous areas shall be of the type approved for the particular hazard.

3.4 CONDUCTORS AND CONNECTORS

- A. All branch circuits and fixture wiring joint, splices and taps for conductors #10 and smaller shall be made with 3M "Scotchlocks" or approved equal.
- B. Circuit and signal terminations to single-screw or push-on terminals shall be done with insulated "Sta-Kons" or approved equal terminals.
- C. Bolt-type solderless connectors shall be torqued with a torque wrench according to the manufacturer's recommendations then retightened after 24-48 hours before taping. Owners' inspector shall be informed of this procedure during the waiting period and shall witness the act of retightening.
- D. All splices shall be taped with Scotch #88 plastic electrical tape with "Scotch Fill" where necessary for a smooth joint. For other than normal temperatures or conditions Scotch #27 or #2520 shall be used. All connections and splices shall be electrically perfect and in strict accordance with all code requirements.

- E. No splices shall be made below grade in a manhole or pull hole without the Engineer's written approval, and then shall be encapsulated with 3M potting kits per 3M Specifications.
- F. Wire in panels, cabinets, pull boxes and wiring gutters shall be squared, labeled and neatly grouped with "Ty-Raps" and fanned out to the terminals.

3.5 JUNCTION AND PULL BOXES AND WIREWAYS

- A. Boxes shall be installed square and plumb. An engraved nameplate shall be installed indicating the function of each box on the exterior in unfinished areas and on the interior in finished areas.
- B. Install wireways with strip-type connectors with self-retained mounting screws. Use hangers with two-piece hook-together features to permit preassembling of wireway and hanger bottom plate before hanging on a preinstalled upper bracket.

3.6 SUPPORTS AND ANCHORS

- A. Provide inserts, anchors, supports, rods, brackets and miscellaneous items to adequately support and secure the electrical systems and equipment.
- B. Secure hangers, brackets, conduit straps, supports and electrical equipment to surfaces by means of toggle bolts on hollow masonry; expansion shields and machine screws or standard preset inserts on concrete or masonry; machine screws or bolts on metal surfaces; wood screws on wood construction. Wood or fiber plugs or concrete nails are not acceptable.
- C. Power driven or velocity driven inserts may be not used unless specifically approved by the engineer, and where their use does not affect finished appearance of work.
- D. They may not be used in prestressed slabs, beams, purlins, precast members or in tension.
- E. Seismic Requirements: Provide vertical and lateral supporting equipment to resist application of seismic forces per CAC.

END OF SECTION

SECTION 310513 – SOILS FOR EARTHWORK**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes: Excavated (and re-used) materials and imported materials.
- B. Related Sections:
 - 1. Division 31 Section "Site Clearing."
 - 2. Division 31 Section "Earthwork."
 - 3. Appendix, Geotechnical Report.

1.3 SUBMITTALS

- A. Samples: Submit, in air-tight containers, 10 lb. sample of Type S3 and S4 fill to inspector.
- B. Materials Source: Submit location of imported materials source. Provide materials from same source throughout the work. Change of source requires approval.

PART 2 - PRODUCTS**2.1 SOIL MATERIALS**

- A. Soil Type S1: Excavated and re-used material, graded, free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.
- B. Soil Type S2: Excavated and reused material, graded, free of roots, lumps greater than one inch, rocks larger than 1/2 inch, debris, weeds and foreign matter.
- C. Soil Type S3: Imported topsoil, friable loam: reasonably free of roots, rocks larger than 1/2 inch, debris, weeds, and foreign matter.
- D. Soil Type S4: Imported borrow, suitable for purposes intended, free of vegetable matter and other unsatisfactory material, with minimum R value of 10 and required as follows:

2.2 SOURCE QUALITY CONTROL

- A. Inspection of imported soil will be performed by field representative of Owner's Geotechnical Engineer.

PART 3 - EXECUTION

3.1 STOCKPILING

- A. Stockpile imported material on site at location designated by project inspector.
- B. Stockpile imported material in sufficient quantities to meet project schedule and requirements.

3.2 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in a clean and neat condition. Grade site surface to prevent freestanding surface water.

END OF SECTION

SECTION 311100 – SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Protecting existing vegetation to remain.
 - 2. Removing existing vegetation.
 - 3. Clearing and grubbing.
 - 4. Stripping and stockpiling topsoil.
 - 5. Removing above and below-grade site improvements.
 - 6. Disconnecting, capping or sealing, and removing site utilities.

- B. Related Sections:
 - 1. Division 31 Section "Earthwork."
 - 2. Appendix; Geotechnical Report.

1.3 DEFINITIONS

- A. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

- B. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.

- C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil and is the zone where plant roots grow.

- D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and indicated on Drawings.
 - 1. Tree protection shall be defined by a circle concentric with each tree with a radius 1.5 times the diameter of the drip line unless otherwise indicated.

- E. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 MATERIALS OWNERSHIP

- A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5 SUBMITTALS

- A. Existing Conditions: Digital photographic documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.
- B. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.6 QUALITY ASSURANCE

- A. Preinstallation Conference: Conduct conference at Project site.

1.7 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.
 - 1. Do not proceed with work on adjoining property until directed by Architect.
- C. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises at location directed by Architect or City official.
- D. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
- E. Do not commence site clearing operations until temporary erosion and sedimentation control and plant-protection measures are in place.
- F. The following practices are prohibited within protection zones:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Parking vehicles or equipment.
 - 3. Foot traffic.

4. Erection of sheds or structures.
 5. Impoundment of water.
 6. Excavation or other digging unless otherwise indicated.
 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- G. Do not direct vehicle or equipment exhaust towards protection zones.
- H. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.
- I. Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry or slightly moist.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Protect existing site improvements to remain from damage during construction.
 1. Restore damaged improvements to their original condition, as acceptable to Owner.
- C. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated. Identify trees to remain by wrapping a 1-inch blue vinyl tie tape flag around each tree trunk at 54 inches above the ground.
- D. Protect trees, plant growth, and vegetation not specifically designated for removal.
- E. Verify that existing plant life to be removed has been authorized for removal.
- F. Examine site and compare individual work areas with the Drawings and Specifications.
- G. Thoroughly investigate and verify conditions under which the work is to be performed.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Comply with Storm Water Pollution Prevention Plan (SWPPP) and requirements of authorities having jurisdiction.
- B. Provide temporary erosion and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.

- C. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- D. Inspect, maintain, and repair erosion and sedimentation-control measures during construction until permanent vegetation has been established.
- E. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 EXISTING UTILITIES

- A. Utilities to Remain: Locate, identify, and protect utilities that are to remain from damage.
- B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Architect not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Architect's permission.
- C. Utility Termination: Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place. Arrange with utility companies to shut off affected utilities and notify Owner not less than 48 hours in advance of utility termination.
 - 1. Excavate for and remove underground utilities indicated to be removed.

3.4 CLEARING AND GRUBBING

- A. Clear only limited areas required for execution of work at proposed improvement location.
- B. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
 - 1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
 - 2. Grind down stumps and remove roots, obstructions, and debris to a depth of not less than 24 inches below the bottom of the lowest structure footing or 2 feet below finished subgrade whichever depth is lower. Root systems deeper than indicated above shall be excavated to allow no roots larger than 2 inches in diameter.
 - 3. Use only hand methods for grubbing within protection zones.
 - 4. Chip removed tree branches and dispose of off-site.
- C. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to at least 90 percent relative compaction.

3.5 TOPSOIL EXCAVATION

- A. Remove sod, grass, and similar vegetation before stripping topsoil.
- B. Strip topsoil to depth of 6 inches or as indicated in the geotechnical report in a manner to prevent intermingling with underlying subsoil or other waste materials.
 1. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects more than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.
- C. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.
 1. Limit height of topsoil stockpiles to 72 inches.
 2. Do not stockpile topsoil within protection zones.
 3. Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or reused.

3.6 SITE IMPROVEMENTS

- A. Remove existing above and below-grade improvements as indicated and necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
 1. Neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
 2. Remove concrete slabs, paving, walks, gutters, and curbs to nearest joint locations.
 3. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

3.7 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
- B. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

END OF SECTION

SECTION 312000 – EARTHWORK**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Preparing subgrades for slabs-on-grade, walks, pavements, turf and grasses, and plants.
 - 2. Over excavation of building pad and pavement area.
 - 3. Excavating soil and other material for surface improvements.
 - 4. Placing fill.
 - 5. Compaction of existing ground and fill.
 - 6. Preparation of subgrade for other improvements.
 - 7. Grading of soil.
- B. Related Sections:
 - 1. Division 31 Section “Site Clearing.”
 - 2. Appendix, Geotechnical Report.

1.3 REFERENCES

- A. ASTM D 1557.

1.4 DEFINITIONS

- A. Fill: Soil material or controlled low-strength material used to fill an excavation or raise existing grades.
- B. Borrow Soil: Satisfactory soil imported from off-site for use as fill.
- C. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
- D. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- E. Subgrade: Uppermost surface of an excavation.
- F. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.5 SUBMITTALS

- A. Material Test Reports: Classification according to ASTM D 2487 for each borrow soil material proposed for fill and backfill.

1.6 QUALITY ASSURANCE

- A. Pre-excavation Conference: Conduct conference at Project site.

1.7 PROJECT CONDITIONS

- A. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth moving operations.
- B. Do not commence earth moving operations until temporary erosion and sedimentation control measures required by authorities having jurisdiction are in place.
- C. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth moving operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- D. Do not commence earth moving operations until plant-protection measures are in place.
- E. The following practices are prohibited within protection zones:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Parking vehicles or equipment.
 - 3. Foot traffic.
 - 4. Erection of sheds or structures.
 - 5. Impoundment of water.
 - 6. Excavation or other digging unless otherwise indicated.
 - 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- F. Do not direct vehicle or equipment exhaust towards protection zones.
- G. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

PART 2 - PRODUCTS**2.1 SOIL MATERIALS**

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

1. Any borrow soil materials proposed to be brought on-site are subject to inspection and testing by Owner's geotechnical testing agency to verify they are in compliance with referenced standards. Owner shall determine if testing of materials is required prior to any material being brought onto the site. Testing of materials may take up to two weeks to verify compliance with standards.

B. Soil Types:

1. Soil Type S1: Excavated and re-used material, graded, free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.
2. Soil Type S2: Excavated and reused material, graded, free of roots, lumps greater than one inch, rocks larger than 1/2 inch, debris, weeds and foreign matter.
3. Soil Type S3: Imported topsoil, friable loam; reasonably free of roots, rocks larger than 1/2 inch, debris, weeds, and foreign matter.
4. Soil Type S4: Imported borrow, suitable for purposes intended, free of vegetable matter and other unsatisfactory material, with minimum R value of 10 and required as follows:
 - a. Maximum Plasticity Index: 10.
 - b. Maximum Particle Size (inches): 3 inches.
 - c. Percentage Passing #200 Sieve: 20-40%.
 - d. Minimum "R" Value (pavement area): 50.
 - e. Maximum Expansion Index: 20 (very low expansion).
 - f. Non-Corrosive: Soluble sulfates less than 1500 ppm, soluble chlorides less than 150 ppm.
 - g. Soil Resistivity: Less than 4000 ohms

C. Soil for Fills:

1. Fill in Turf or Planting Areas: Excavated soils that have been graded and cleansed of excessive organics, debris, rocks, and lumps.
2. Fill in Turf or Other Planting Areas: Type S2 or S3.
3. Fill in Non-planting Areas: Type S1, S2 or S4.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Contractor shall thoroughly examine the project site prior to submitting his bid to familiarize himself with the conditions of the site and the conditions in which he will be required to work.
- B. Contractor shall thoroughly examine contract documents prior to bid.
 1. Documents do not necessarily indicate a balanced site.
 2. Contractor shall be responsible for importing materials from an off-site location or exporting excess material to an off-site location.

3.2 PREPARATION

- A. Site clearing specified in Division 31 Section “Site Clearing” shall be performed prior to beginning earthwork.
- B. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations. Coordinate excavations near existing utilities with utility companies.
- C. Protect and maintain erosion and sedimentation controls during earth moving operations.
- D. Identify required lines, levels, contours and datum.
- E. Locate, identify, and protect existing above and below grade utilities from damage.
- F. Protect plant life, lawns, trees, shrubs, and other features not authorized for removal.
- G. Employ equipment and methods appropriate to the work site.
- H. Protect excavated areas from drainage inflow, and provide drainage to all excavated areas.

3.3 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
 - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

3.4 STORAGE OF SOIL MATERIALS

- A. Stockpile excavated satisfactory soil and materials borrow soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust. Stockpile soil materials away from edge of excavations. Do not store within drip line of trees to remain.

3.5 EXCAVATION

- A. Earthwork shall comply with requirements and recommendations in referenced Geotechnical Report.
 - 1. A representative from the Owner’s geotechnical testing agency shall be present during earthwork operations.

- B. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
- C. Excavations at Edges of Tree and Plant-Protection Zones: Excavate by hand to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots.
 - 1. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
 - 2. Where authorized to cut roots, cut roots with a saw.
- D. Excavation for Structures: Following the stripping operations, the exposed surface in the area of the planned building improvements and structural concrete slabs-on-grade shall be over excavated to a depth as described in the Geotechnical Report. The over excavation shall extend at least 5 feet horizontally beyond perimeter exterior edges of proposed footings or structural concrete slabs-on-grade. The exposed ground surface shall be reviewed by a field representative of the Owner's Geotechnical Engineer to evaluate if any loose or soft zones are present that will require additional over excavation. Any areas encountered with debris fill in the subgrade of the over excavation shall be excavated an additional depth equal to the depth of the debris fill and the exact depth shall be determined by a field representative of the Owner's Geotechnical Engineer. The bottom of the over excavation shall be scarified to a depth of 6 inches, moisture conditioned to near optimum moisture content, and compacted as required under the "Compaction" Article.
 - 1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
- E. Excavation for Pavements and Flatwork: Following the stripping operations, the exposed surface in the area of proposed paved areas shall be over excavated to a depth as described in the Geotechnical Report. The exposed ground surface shall be reviewed by a field representative of the Owner's Geotechnical Engineer to evaluate if any loose or soft zones are present that will require additional over excavation. Any areas encountered with debris fill in the subgrade of the over excavation shall be excavated an additional depth equal to the depth of the debris fill and the exact depth shall be determined by a field representative of the Owner's Geotechnical Engineer. The bottom of the over excavation shall be scarified to a depth of 6 inches, moisture conditioned to near optimum moisture content, and compacted as required under the "Compaction" Article.

3.6 SUBGRADE INSPECTION

- A. If representative of Owner's geotechnical testing agency determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

- B. Proof-roll subgrade below building slabs, pavements, and walks with equipment of type, size, and weight recommended by representative of Owner's geotechnical testing agency to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
 - 1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
 - 2. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.

3.7 FILLING AND COMPACTING

- A. After excavation and just prior to filling, the bottom of excavations shall be scarified to a depth of 6 inches, moisture conditioned to a minimum of 2 percent above optimum moisture content, and compacted to a minimum of 90 percent of maximum density based on ASTM Method D 1557.
- B. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
- C. Fills shall be placed in lifts approximately 8 inches thick, moisture conditioned to a minimum of 2 percent above optimum moisture content, and compacted to values indicated.
- D. Place soil fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- E. Compact soil materials to not less than the following percentages of maximum dry unit weight according ASTM D 1557:
 - 1. Under structures, building slabs, steps, and pavements: 95 percent.
 - 2. Under walkways: 95 percent.
 - 3. Under turf or unpaved areas: 85 percent.

3.8 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated on Drawings.
 - 1. Provide a smooth transition between adjacent existing grades and new grades.
 - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
 - 1. Turf or Unpaved Areas: Plus or minus 1 inch.
 - 2. Walks: Plus or minus 1/2 inch.
 - 3. Pavements: Plus or minus 1/2 inch.

- C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.9 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.
- B. Notify Testing Agency not less than 48 hours in advance of Earthwork operations so that a field representative may be scheduled to be on-site during Earthwork operations.
- C. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.
- D. Compaction testing will be performed in accordance with ASTM D 1557-78 (Method A).
- E. If tests indicate work does not meet specified requirements, recompact, or remove and replace, and retest.

3.10 PROTECTION

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

3.11 CLEANING AND DISPOSAL OF SURPLUS MATERIALS

- A. Rake Clean.
- B. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.
- C. Adjacent roadways shall be kept clean during the progress of this work.

END OF SECTION

SECTION 312323 - BACKFILL**PART 1 - GENERAL****1.1 SUMMARY**

A. Section Includes:

1. Backfilling building perimeter to subgrade elevations.
2. Backfilling site structures to subgrade elevations.
3. Fill under slabs-on-grade.
4. Fill under paving.
5. Fill for over-excavation.

1.2 SUBMITTALS

- A. Manufacturer's Certificate: Certify materials meet or exceed specified requirements.

1.3 QUALITY ASSURANCE

- A. Perform Work in accordance with Division of the State Architect Standard Specifications.

PART 2 - PRODUCTS**2.1 FILL MATERIALS**

- A. Import fill materials: All import fill materials must be free from organic materials or deleterious substances. The contractor shall contact the Geotechnical Engineer for review of proposed import fill materials for conformance with the specified requirements, whether from on-site or off-site borrow areas. All imported fill should be non-hazardous, non-expansive, and be derived from a single, consistent soil type source conforming to the following criteria:

1. New fill and backfill should be free of organic matter, contain no rocks or lumps larger than three inches in greatest dimension, have a liquid limit less than 40 and plasticity index less than 12, and be approved by the geotechnical engineer. All fill should be placed in lifts not exceeding eight inches in loose thickness, moisture-conditioned to near optimum moisture content, and compacted to at least 90 percent relative compaction. The upper six inches of the building slab, boat ramp, and concrete flatwork subgrade should be moisture-conditioned to near optimum moisture content and compacted to at least 90 percent relative compaction. The subgrade surface should be rolled to a dense, non-yielding surface. If the compacted subgrade is disturbed during utility trench or foundation excavations, the Subgrade should be re-rolled to provide a smooth, firm surface for slab support.

PART 3 - EXECUTION**3.1 PREPARATION**

- A. Compact subgrade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill and compact to density equal to or greater than requirements for subsequent fill material.
- C. Scarify subgrade surface to depth of 8 inches.
- D. Proof roll to identify soft spots; fill and compact to density equal to or greater than requirements for subsequent fill material.

3.2 BACKFILLING

- A. Backfill areas to contours and elevations.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- C. Place material in continuous layers as follows:
 - D. Maximum 8 inches loose thickness.
 - E. Moisture conditioned to within two (2) percent of optimum moisture content.
 - F. Compacted to minimum 90% relative compaction or 95% within the upper 12 inches of subgrade under paved areas.
- G. Employ placement method that does not disturb or damage other work.
- H. Backfill against supported foundation and retaining walls. Do not backfill against unsupported foundation and retaining walls.
- I. Backfill simultaneously on each side of unsupported foundation walls until supports are in place.
- J. Slope grade away from building minimum 5 percent slope for minimum distance of 5 ft, unless noted otherwise.
- K. Make gradual grade changes. Blend slope into level areas.
- L. Remove surplus backfill materials from site.
- M. Leave fill material stockpile areas free of excess fill materials.

3.3 TOLERANCES

- A. Top Surface of Backfilling Within Building Areas: Plus or minus 1 inch from required elevations.
- B. Top Surface of Backfilling Under Paved Areas: Plus or minus 1 inch from required elevations.
- C. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

3.4 FIELD QUALITY CONTROL

- A. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- B. Frequency of Tests: As determined by Owner.
- C. Proof roll compacted fill surfaces under paving, and permeable concrete surfacing.

3.5 PROTECTION OF FINISHED WORK

- A. Reshape and re-compact fills subjected to vehicular traffic.

END OF SECTION

SECTION 321313 – CONCRETE PAVING AND WALKS**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. SSCDOT – Standard Specifications, State of California, Department of Transportation (Caltrans) latest edition, except references to method of payment, and references to any state furnished materials.

1.2 SUMMARY

- A. Section Includes: Concrete paving for the following:
 - 1. Driveways.
 - 2. Parking lots.
 - 3. Curbs, gutters, and walks.
- B. Related Sections:
 - 1. Division 03 Section "Cast-in-Place Concrete" for general building applications of concrete.
 - 2. Division 31 Section "Earthwork."

1.3 DEFINITIONS

- A. Cementitious Materials: Type II gray Portland Cement conforming to the specifications of ASTM C150-02a and the requirements of Caltrans Specification Section 90 for "Type II Modified" portland cement.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Material Test Reports: For each of the following:
 - 1. Aggregates. Include service-record data indicating absence of deleterious expansion of concrete due to alkali-aggregate reactivity.
- D. Delivery Tags: Delivery tags for all concrete.

1.5 QUALITY ASSURANCE

- A. All improvements within property owned by a City, County, or State Entity shall be in accordance with the Standards and Specifications of the authority having jurisdiction.
- B. Installer Qualifications: A qualified installer who employs on Project personnel who shall be thoroughly familiar with the specified requirements, completely trained and experienced in the necessary skills required for work performed under this Section. In actual installation of the work of this Section, use adequate numbers of skilled workmen to insure installation in strict accordance with the contract documents design.
- C. Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
- E. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
 - 2. ACI 318-05, "Building Code Requirements for Structural Concrete" with amendments per 2007 California Building Code, Chapter 19, Section 1908.
 - 3. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

PART 2 - PRODUCTS

2.1 FORMS MATERIALS

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.
 - 1. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less. Do not use notched and bent forms.
- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.2 STEEL REINFORCEMENT

- A. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, fabricated from steel wire into flat sheets.
- B. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.
- C. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 plain-steel bars. Cut bars true to length with ends square and free of burrs.

- D. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:
1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.

2.3 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of same type, brand, and source throughout Project:
1. Portland Cement: Type II gray Portland Cement conforming to the specifications of ASTM C150-02a and the requirements of Caltrans Specification Section 90 for "Type II Modified" Portland Cement.
- B. Normal-Weight Aggregates: ASTM C 33, uniformly graded. Provide aggregates from a single source with documented service-record data of at least 10 years' satisfactory service in similar paving applications and service conditions using similar aggregates and cementitious materials.
1. Maximum Coarse-Aggregate Size: 1 inch nominal.
 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: Potable and complying with ASTM C 94/C 94M.

2.4 CURING MATERIALS

- A. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- B. Water: Potable.
- C. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.
- D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating. It shall be the Contractor's responsibility to verify that all curing compounds used comply with the VOC Emission requirements of the San Joaquin Valley Air Pollution Control District.

2.5 RELATED MATERIALS

- A. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber in preformed strips.

2.6 CONCRETE MIXTURES

- A. General: Concrete mixtures shall comply with requirements of authorities having jurisdiction.
- B. Mixtures for concrete pavements, gutters and curbs subject to vehicular traffic:
 - 1. Concrete shall be Class 2 (Previous years denoted as Class A) and shall contain 590 pounds minimum (6 sacks) of Portland Cement per cubic yard conforming to the requirements of Section 90 of the Caltrans Specifications.
 - a. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.
 - 2. Proportion mixtures to provide normal-weight concrete with the following properties:
 - a. Compressive Strength (28 Days): 3000 psi minimum.
 - b. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.50.
 - c. Slump Limit: 4 inches maximum.
- C. Mixtures for concrete walks, gutters and curbs subject to only pedestrian traffic:
 - 1. Concrete shall be Class 3 (Previous years denoted as Class B) and shall contain 505 pounds minimum (5 sacks) of Portland Cement per cubic yard conforming to the requirements of Section 90 of the Caltrans Specifications unless noted otherwise on the drawings.
 - a. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.
 - 2. Proportion mixtures to provide normal-weight concrete with the following properties:
 - a. Compressive Strength (28 Days): 2500 psi minimum.
 - b. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.58.
 - c. Slump Limit: 5 inches maximum.
- D. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

2.7 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Furnish batch certificates for each batch discharged and used in the Work.
 - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION**3.1 EXAMINATION**

- A. Examine exposed subgrades and base surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.
- B. Proof-roll prepared base surface below concrete paving to identify soft pockets and areas of excess yielding.
 - 1. Completely proof-roll subbase in one direction and repeat in perpendicular direction. Limit vehicle speed to 3 mph.
 - 2. Proof-roll with a pneumatic-tired and loaded, 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
 - 3. Correct subbase with soft spots and areas of pumping or rutting exceeding depth of 1/2 inch according to requirements in Division 31 Section "Earth Moving."
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

- A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.
- D. Install welded wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.5 JOINTS

- A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.
1. When joining existing paving, place transverse joints to align with previously placed joints unless otherwise indicated.
- B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.
1. Continue steel reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of paving strips unless otherwise indicated.
 2. Provide tie bars at sides of paving strips where indicated.
 3. Keyed Joints: Provide preformed keyway-section forms or bulkhead forms with keys as shown on the Drawings.
 4. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.
- C. Isolation Joints: Form isolation joints of preformed joint-filler strips where noted on the Drawings.
1. Extend joint fillers full width and depth of joint.
 2. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
 3. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
 4. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
 5. During concrete placement, protect top edge of joint filler with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
- D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows:
1. Grooved Joints: Form 1/4-inch wide contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 1/4-inch radius unless noted otherwise on the drawings. Repeat grooving of contraction joints after applying surface finishes. Eliminate grooving-tool marks on concrete surfaces.
 - a. Tolerance: Ensure that grooved joints are within 3 inches either way from centers of dowels.

2. Sawn Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.
 - a. Tolerance: Ensure that sawed joints are within 3 inches either way from centers of dowels.
- E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch radius unless noted otherwise on the Drawings. Repeat tooling of edges after applying surface finishes. Eliminate edging-tool marks on concrete surfaces.

3.6 CONCRETE PLACEMENT

- A. Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast-in.
- B. Remove snow, ice, or frost from subbase surface and steel reinforcement before placing concrete. Do not place concrete on frozen surfaces.
- C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.
- E. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.
- F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- G. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.
 1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement and dowels.
- H. Screed paving surface with a straightedge and strike off.
- I. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

- J. Cold-Weather Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:
1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
 2. Do not use frozen materials or materials containing ice or snow.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.
- K. Hot-Weather Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:
1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.7 CONCRETE FINISHING

- A. Float Finish: After initial floating during placement, begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
1. Medium-to-Fine-Textured Broom Finish: Draw a soft-bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

3.8 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Comply with ACI 306.1 for cold-weather protection.

- C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.
- D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound or a combination of these as follows:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period using cover material and waterproof tape.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas that have been subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating, and repair damage during curing period.

3.9 PAVING TOLERANCES

- A. Comply with tolerances in ACI 117 and as follows:
 - 1. Elevation: 1/4 inch.
 - 2. Thickness: Plus 3/8 inch, no minus .
 - 3. Surface: Gap below 10-foot- long, unleveled straightedge not to exceed 1/4 inch
 - 4. Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: 1/2 inch per 12 inches of tie bar.
 - 5. Lateral Alignment and Spacing of Dowels: 1 inch.
 - 6. Vertical Alignment of Dowels: 1/4 inch.
 - 7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: 1/4 inch per 12 inches of dowel.
 - 8. Joint Spacing: 3 inches.
 - 9. Contraction Joint Depth: Plus 1/4 inch, no minus.
 - 10. Joint Width for Grooved Joints: Plus 1/8 inch, no minus.

3.10 FIELD QUALITY CONTROL

- A. Testing Agency: Owner shall engage a qualified testing agency to perform tests and inspections. Agency shall be qualified according to ASTM C 1077 and ASTM E 329 for testing indicated. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
- B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain at least one composite sample for each 5000 sq. ft. or fraction thereof of each concrete mixture placed each day.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 3. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when it is 80 deg F and above, and one test for each composite sample.
 4. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
 5. Compressive-Strength Tests: ASTM C 39/C 39M; test one specimen at seven days and two specimens at 28 days.
 - a. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days.
- C. Strength of each concrete mixture will be satisfactory if the average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- D. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.

- F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, compressive strengths, or other requirements have not been met, as directed by Architect.
- G. Concrete paving will be considered defective if it does not pass tests and inspections.
- H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- I. Prepare test and inspection reports.

3.11 REPAIRS AND PROTECTION

- A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.
- B. Additional construction, testing, and replacement costs resulting from damaged or improperly installed infrastructure shall be paid for by the Contractor.
- C. Drill test cores, where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive.
- D. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
- E. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION

SECTION 323113 – CHAIN LINK FENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Chain-link fences.
- B. Related Sections:
 - 1. Division 03 Section "Cast-in-Place Concrete."

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for chain-link fences.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work. Show accessories, hardware, and operational clearances.

1.4 PROJECT CONDITIONS

- A. Field Measurements: Verify layout information for chain-link fences shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

PART 2 - PRODUCTS

2.1 CHAIN-LINK FENCE FABRIC

- A. General: Provide chain link fence fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist. Comply with CLFMI Product Manual and with requirements indicated below:
 - 1. Fabric Height: As indicated on Drawings.

2. Wire diameter: Match existing.
3. Mesh Size: Match existing.
4. Zinc-Coating: ASTM A 392, Type II, Class 1, 1.2 oz./sq. ft. with zinc coating applied after weaving.
5. Selvage: Knuckled at both selvages.

2.2 FENCE FRAMING

- A. Posts and Rails: Comply with ASTM F 1043 for framing, including rails, braces, and line; terminal; and corner posts. Heavy industrial strength round steel pipe, material Group IA, schedule 40, galvanized; pipe coated inside and outside by hot-dipped method, 1.8 oz. per square foot of surface; provide members with minimum dimensions and wall thickness according to ASTM F 1083 based on the following:
1. Fence Height: Match existing.
 2. Line Posts:
 - a. Fence height to 6 feet: 1.9 inches outside diameter, 2.72 plf.
 - b. Fence height over 6 feet to 8 feet: 2.375 inches outside diameter, 3.65 plf.
 3. End, Corner and Pull Posts:
 - a. Fence height to 6 feet: 2.375 inches outside diameter, 3.65 plf.
 - b. Fence height over 6 feet to 8 feet: 2.875 inches outside diameter, 5.79 plf.
 4. Horizontal and Brace Rails: 1.66 inches outside diameter, 2.27 plf.

2.3 TENSION WIRE

- A. Tension Wire: 0.177-inch diameter, marcelled steel tension wire complying with ASTM A 817 and ASTM A 824; Type II, zinc coated (galvanized), Class 4, not less than 1.2 oz./sq. ft. of uncoated wire surface.

2.4 FITTINGS

- A. Fittings, General: Comply with ASTM F 626.
- B. Post Caps: Caps shall be weatherproof to prevent moisture intrusion into posts. Provide line post caps with loop to receive top rail; provide for each post.
- C. Rail and Brace Ends: Designed to provide secure connection of top rails to terminal post and brace or other rails to terminal and intermediate posts; provide for each corner, pull, and end post.
- D. Rail Fittings: Provide the following:
1. Top Rail Sleeves: Pressed-steel or round-steel tubing not less than 6 inches long.

2. Rail Clamps: Line and corner boulevard clamps for connecting intermediate rails in the fence line-to-line posts.
- E. Tension and Brace Bands: Pressed steel for posts up to 4 inches in outside diameter.
- F. Tension Bars: Steel, length not less than 2 inches shorter than full height of chain-link fabric. Provide one bar for each end post, and two for each corner and pull post, unless fabric is integrally woven into post.
- G. Truss Rod Assemblies: Steel, hot-dip galvanized after threading rod and turnbuckle or other means of adjustment; minimum 5/16 inch rod diameter.
- H. Tie-Wire: Standard round wire ties for attaching chain-link fabric to posts, rails, and frames; hot-dip galvanized steel, 0.148-inch (9 gage) diameter wire; galvanized coating thickness matching coating thickness of chain-link fence fabric.
- I. Hog Rings: Round wire ties for attaching chain-link fabric to bottom tension wire; 0.12-inch diameter of same material and finish as fabric wire.
- J. Finish: Metallic coating for pressed steel or cast iron fittings, not less than 1.2 oz. /sq. ft. zinc.

2.5 SETTING MATERIALS

- A. Concrete: Minimum 28 day compressive strength of 3,000 psi and one of the following:
 1. Ready mix concrete as specified in Division 03 Section "Cast-in-Place Concrete.
 2. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with potable water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended in writing by manufacturer, for exterior applications.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.
 1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Stake locations of fence lines and terminal posts. Do not exceed intervals of 200 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 INSTALLATION, GENERAL

- A. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements indicated.
 - 1. Install fencing on established boundary lines inside property line.

3.4 FENCE FRAMING INSTALLATION

- A. Post Excavation and Footings: Drill or hand-excavate holes for posts to diameters, depths, and spacings indicated, in firm, undisturbed soil; if footing diameters and depths are not indicated, footings shall be as follows:
 - 1. Tops of footings shall be established as 4 inches below finish grade.
 - 2. Fences to 6 Feet in Height:
 - a. Line Posts: 10 inches diameter by 30 inches deep.
 - b. End, Corner, and Pull Posts: 10 inches diameter by 36 inches deep.
- B. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 - 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 - 2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
 - a. Comply with the following for posts in paved areas installed prior to paving:
 - 1) Posts in Concrete Paved Areas, Curbs, and Mow Strips: Coordinate top of paving elevation and pour concrete fill to approximately 6 inches below finish grade.
 - 2) Posts in Asphalt Concrete Paved areas: Concrete fill to be flush with adjacent paving and crowned to shed water away from posts. Coordinate top of paving elevation and form top 6 inches of footing with round concrete form of diameter matching post footing; pour concrete fill prior to paving operations.
 - b. Posts in Unpaved Areas: Concrete fill to be 2 inches above finish grade and crowned to shed water away from posts. Coordinate finish grade elevation and form top 6 inches of footing with round concrete form of diameter matching post footing.

- C. Terminal Posts: Locate terminal end and corner posts per ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of 15 degrees or more.
- D. Line Posts: Space line posts uniformly at 10 feet o.c. unless otherwise indicated.
- E. Post Bracing and Intermediate Rails: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.
 - 1. Locate horizontal braces at midheight of fabric 6 feet or higher, on fences with top rail and at two-third fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.
- F. Top Rail: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.
- G. Intermediate and Bottom Rails: Where indicated or required, install and secure to posts with fittings.
- H. Bottom Tension Wire: Install according to ASTM F 567 extended along and within 6 inches of bottom of fabric maintaining plumb position and alignment of fencing. Pull wire taut, without sags; install tension wire before stretching fabric; tie to each post with not less than same diameter and type of wire.

3.5 CHAIN-LINK FABRIC INSTALLATION

- A. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 2 inches between finish grade or surface and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.
- B. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, and pull posts with tension bands spaced not more than 15 inches o.c.
- C. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric per ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing. Tie fabric to line posts at 12 inches o.c. and to braces at 24 inches o.c.
- D. Fasten fabric to tension wire with hog rings spaced a maximum of 24 inches o.c.

- E. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

END OF SECTION

APPENDIX

**GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED KINGSBURG HIGH SCHOOL
AG SHOP SHADE STRUCTURE
MENDOCINO AVENUE
KINGSBURG, CALIFORNIA**

**PROJECT NO. 012-20093
JUNE 29, 2020**

Prepared for:

**MR. RUSSELL TAYLOR
THE TAYLOR GROUP ARCHITECTS
410 PARK CREEK DRIVE
CLOVIS, CALIFORNIA 93611**

Prepared by:

**KRAZAN & ASSOCIATES, INC.
GEOTECHNICAL ENGINEERING DIVISION
215 W. DAKOTA AVENUE
CLOVIS, CALIFORNIA 93612
(559) 348-2200**

June 29, 2020

Project No. 012-20093

Mr. Russell Taylor
The Taylor Group Architects
410 Park Creek Drive
Clovis, California 93611

**RE: Geotechnical Engineering Investigation
Proposed Kingsburg High School Ag Shop Shade Structure
Mendocino Avenue
Kingsburg, California**

Dear Mr. Taylor:

In accordance with your request, we have completed a Geotechnical Engineering Investigation for the above-referenced site. The results of our investigation are presented in the attached report.

If you have any questions or if we may be of further assistance, please do not hesitate to contact our office at (559) 348-2200.



Respectfully submitted,
KRAZAN & ASSOCIATES, INC.

David R. Jarosz, II
Managing Engineer
RGE No. 2698/RCE No. 60185

DRJ:ht

TABLE OF CONTENTS

INTRODUCTION 1

PURPOSE AND SCOPE..... 1

PROPOSED CONSTRUCTION..... 2

SITE LOCATION AND SITE DESCRIPTION 2

GEOLOGIC SETTING 2

FIELD AND LABORATORY INVESTIGATIONS 3

SOIL PROFILE AND SUBSURFACE CONDITIONS 4

GROUNDWATER..... 5

SOIL LIQUEFACTION 5

CONCLUSIONS AND RECOMMENDATIONS..... 6

 Administrative Summary 6

 Groundwater Influence on Structures/Construction 7

 Site Preparation 7

 Engineered Fill..... 8

 Drainage and Landscaping..... 9

 Utility Trench Backfill 9

 Foundations 9

 Floor Slabs and Exterior Flatwork..... 10

 Lateral Earth Pressures and Retaining Walls..... 11

 Seismic Parameters – 2019 CBC 11

 Soil Cement Reactivity 12

 Compacted Material Acceptance 12

 Testing and Inspection 12

LIMITATIONS..... 13

SITE PLAN 15

LOGS OF BORINGS (1 AND 2)..... Appendix A

GENERAL EARTHWORK SPECIFICATIONS Appendix B

June 29, 2020

Project No. 012-20093

**GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED KINGSBURG HIGH SCHOOL AG SHOP SHADE STRUCTURE
MENDOCINO AVENUE
KINGSBURG, CALIFORNIA**

INTRODUCTION

This report presents the results of our Geotechnical Engineering Investigation for the proposed Ag Shop Shade Structure to be located at Kingsburg High School in Kingsburg, California. Discussions regarding site conditions are presented herein, together with conclusions and recommendations pertaining to site preparation, Engineered Fill, utility trench backfill, drainage and landscaping, foundations, concrete floor slabs and exterior flatwork, retaining walls, and soil cement reactivity.

A site plan showing the approximate boring locations is presented following the text of this report. A description of the field investigation, boring logs, and the boring log legend are presented in Appendix A. Appendix A also contains a description of the laboratory-testing phase of this study, along with the laboratory test results. Appendix B contains a guide to earthwork specifications. When conflicts in the text of the report occur with the general specifications in the appendices, the recommendations in the text of the report have precedence.

PURPOSE AND SCOPE

This investigation was conducted to evaluate the soil and groundwater conditions at the site, to make geotechnical engineering recommendations for use in design of specific construction elements, and to provide criteria for site preparation and Engineered Fill construction.

Our scope of services was outlined in our proposal dated May 7, 2020 (KA Proposal No. P304-20) and included the following:

- A site reconnaissance by a member of our engineering staff to evaluate the surface conditions at the project site.
- A field investigation consisting of drilling 2 borings to depths ranging from approximately 20 to 50 feet for evaluation of the subsurface conditions at the project site.
- Performing laboratory tests on representative soil samples obtained from the borings to evaluate the physical and index properties of the subsurface soils.

- Evaluation of the data obtained from the investigation and an engineering analysis to provide recommendations for use in the project design and preparation of construction specifications.
- Preparation of this report summarizing the results, conclusions, recommendations, and findings of our investigation.

PROPOSED CONSTRUCTION

We understand that design of the proposed development is currently underway; structural load information and other final details pertaining to the structures are unavailable. On a preliminary basis, it is understood that the development will include the construction of a new shade structure. It is anticipated the structure will have a footprint area of approximately 1,635 square feet. It is anticipated the structure will utilize conventional shallow foundations and concrete slab-on-grade. Footing loads are anticipated to be light to moderate.

In the event, these structural or grading details are inconsistent with the final design criteria, the Soils Engineer should be notified so that we may update this writing as applicable.

SITE LOCATION AND SITE DESCRIPTION

Kingsburg High School is located on the southeast corner of 18th Avenue and Sierra Street in Kingsburg, California. The school is predominately surrounded by residential and commercial developments. A park is located west of the school. A church is located to the south on the west edge of the campus.

The area planned for the canopy is located in the central-western portion of the campus. A shop building is located to the east. A CMU block wall is located to the north and southwest. A compressor and electrical board are located to the northeast. The site is covered with asphaltic concrete pavement. The site is relatively level with no major changes in grade.

GEOLOGIC SETTING

The San Joaquin Valley, which includes the Kingsburg area, is a topographic and structural basin that is bounded on the east by the Sierra Nevada and on the west by the Coast Ranges. The Sierra Nevada, a fault block dipping gently southwestward, is made up of igneous and metamorphic rocks of pre-Tertiary age that comprise the basement complex beneath the Valley. The Coast Ranges contain folded and faulted sedimentary rocks of Mesozoic and Cenozoic age, which are similar to those rocks that underlie the Valley at depth and nonconformably overlie the basement complex; gently dipping to nearly horizontal sedimentary rocks of Tertiary and Quaternary age overlie the older rocks. These younger rocks are mostly of continental origin and in the Kingsburg area, they were derived from the Sierra Nevada.

The Kings River is the principal river in the area. Alluvial fans formed by this river are the largest geomorphic features in the Kingsburg area. The formation of the fans has resulted in rather flat regional topography.

The Coast Ranges evolved as a result of folding, faulting and accretion of diverse geologic terrains. They are composed chiefly of sedimentary and metamorphic rocks that are sharply deformed into complex structures. They are broken by numerous faults, the San Andreas Fault being the most notable structural feature.

The southern Sierra Nevada represents a tilted fault block composed of a sequence of Mesozoic granitic plutons interspersed with Paleozoic to Mesozoic metamorphic pendants. Mesozoic ultrabasic rocks are present along the western margin of the mountain range. Smaller volumes of Tertiary volcanic and volcanic-derived material are located within the Kings River drainage east of Kingsburg.

Both the Sierra Nevada and Coast Range are geologically young mountain ranges and possess active and potentially active fault zones. Major active faults and fault zones occur at some distance to the east, west and south of the Kingsburg area. The Owens Valley Fault Zone bounds the eastern edge of the Sierra Nevada block and contains both active and potentially active faults. The San Andreas Fault Zone is located along the Coastal and Diablo Ranges to the west.

Portions of the Ortigalita, Calaveras, Hayward and Rinconada Faults, which are to the west, are considered potentially active. The San Andreas Fault is possibly the best known fault and is located about 60 to 70 miles to the west.

There are no active fault traces in the project vicinity. Accordingly, the project area is not within an Earthquake Fault Zone (Special Studies Zone).

Kingsburg residents could feel the effects of a large seismic event on one of the nearby active or potentially active fault zones. Kingsburg has experienced groundshaking from earthquakes in the historical past. According to the Five County Seismic Safety Element, groundshaking of VII intensity (Modified Mercalli Scale) was felt in Kingsburg from the 1872 Owens Valley Earthquake. This is the largest known earthquake event affecting the Kingsburg area.

Secondary hazards from earthquakes include rupture, seiche, landslides, liquefaction and subsidence. Since there are no known faults within the immediate area, ground rupture from surface faulting should not be a potential problem. Seiche and landslides are not hazards in the area either. Liquefaction potential (sudden loss of shear strength in a saturated cohesionless soil) should be low since groundshaking intensities within this area are not strong enough to generate this type of failure. Lastly, deep subsidence problems may be low to moderate according to the conclusions of the Five County Seismic Safety Element. However, there are no known occurrences of structural or architectural damage due to deep subsidence in the Kingsburg area.

FIELD AND LABORATORY INVESTIGATIONS

Subsurface soil conditions were explored by drilling 2 borings to depths ranging from approximately 20 to 50 feet below existing site grade, using a truck-mounted drill rig. The approximate boring locations are shown on the site plan. During drilling operations, penetration tests were performed at regular intervals to evaluate the soil consistency and to obtain information regarding the engineering properties

of the subsoils. Soil samples were retained for laboratory testing. The soils encountered were continuously examined and visually classified in accordance with the Unified Soil Classification System. A more detailed description of the field investigation is presented in Appendix A.

Laboratory tests were performed on selected soil samples to evaluate their physical characteristics and engineering properties. The laboratory-testing program was formulated with emphasis on the evaluation of natural moisture, density, gradation, shear strength, consolidation potential, and moisture-density relationships of the materials encountered. In addition, chemical tests were performed to evaluate the soil cement reactivity. Details of the laboratory test program and results of the laboratory tests are summarized in Appendix A. This information, along with the field observations, was used to prepare the final boring logs in Appendix A.

SOIL PROFILE AND SUBSURFACE CONDITIONS

Based on our findings, the subsurface conditions encountered appear typical of those found in the geologic region of the site. In general, the pavement section consisted of approximately 3 inches of asphaltic concrete underlain by 6 inches of Class 2 aggregate base.

Approximately 2 to 3 feet of fill material was encountered within the borings drilled at the site. The fill material predominately consisted of silty sand. The thickness and extent of fill material was determined based on limited test borings and visual observation. Thicker fill may be present at the site. Limited testing was performed on the fill soils during the time of our field and laboratory investigations. Preliminary testing on the fill materials suggest that some compaction effort was applied to the fill soils at the time of placement.

Below the pavement section and fill material, approximately 4 to 4½ feet of loose to medium dense silty sand was encountered. Field and laboratory tests suggest that these soils are moderately strong and slightly compressible. Penetration resistance ranged from 12 to 16 blows per foot. Dry densities ranged from 109 to 134 pcf. A representative soil sample consolidated approximately 1 percent under a 2 ksf load when saturated.

Below approximately 8 feet, layers of predominately medium dense to very dense sand, silty sand and sandy silt were encountered. Field and laboratory tests suggest that these soils are moderately strong and slightly compressible. Penetration resistance ranged from 11 blows per foot to greater than 50 blows per 6 inches. Dry densities ranged from 95 to 114 pcf. Representative soil samples contained approximately 4 to 95 percent fines. These soils have similar strength characteristics as the upper soils and extended to the termination depth of our borings.

For additional information about the soils encountered, please refer to the boring logs in Appendix A.

GROUNDWATER

Test boring locations were checked for the presence of groundwater during and immediately following the drilling operations. Free groundwater was not encountered within a depth of 50 feet below site grade. Information obtained from the Department of Water Resources indicates that groundwater has been as shallow as 11 feet within the project site vicinity.

It should be recognized that water table elevations may fluctuate with time, being dependent upon seasonal precipitation, irrigation, land use, and climatic conditions, as well as other factors. Therefore, water level observations at the time of the field investigation may vary from those encountered during the construction phase of the project. The evaluation of such factors is beyond the scope of this report.

SOIL LIQUEFACTION

Soil liquefaction is a state of soil particles suspension caused by a complete loss of strength when the effective stress drops to zero. Liquefaction normally occurs under saturated conditions in soils such as sand in which the strength is purely frictional. However, liquefaction has occurred in soils other than clean sand. Liquefaction usually occurs under vibratory conditions such as those induced by seismic event.

To evaluate the liquefaction potential of the site, the following items were evaluated:

- 1) Soil type
- 2) Groundwater depth
- 3) Relative density
- 4) Initial confining pressure
- 5) Intensity and duration of groundshaking

The predominant soils within the project site consist of layers of silty sand, sandy silt, and sand. Groundwater was not encountered within a depth of 50 feet during our exploratory drilling. However, groundwater has been historically encountered at depths as shallow as 11 feet below site grade within the project site and vicinity.

The potential for soil liquefaction during a seismic event was evaluated using the LIQUEFYPRO computer program (version 5.8h) developed by CivilTech Software. For the analysis, a maximum earthquake magnitude of 6.19 was used. A peak horizontal ground surface acceleration of 0.34g was considered conservative and appropriate for the liquefaction analysis within the area. A high groundwater depth of 11 feet was used for the analysis. The computer analysis indicates that soils above a depth of 11 feet are non-liquefiable due to the absence of groundwater. The soils below depths of 11 feet have a very low potential for liquefaction with factors of safety of 1.30 to 5.0. The analysis

also indicates that the estimated total seismic induced settlement due to soil liquefaction is less than 1 inch. The estimated differential seismic settlement was less than $\frac{2}{3}$ inch over the width of the structure. Therefore, no liquefaction mitigation procedures are necessary for this project.

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of our field and laboratory investigations, along with previous geotechnical experience in the project area, the following is a summary of our evaluations, conclusions, and recommendations.

Administrative Summary

In brief, the subject site and soil conditions, with the exception of the fill material and surrounding development, appear to be conducive to the development of the project. Approximately 2 to 2½ feet of fill material was encountered below the pavement section within the borings drilled at the site. The fill material predominately consisted of silty sand. The thickness and extent of fill material was determined based on limited test borings and visual observation. Thicker fill may be present at the site. Limited testing was performed on the fill soils during the time of our field and laboratory investigations. Preliminary testing on the fill material suggests that some compaction effort was applied to these soils at the time of placement. It is recommended that fill soils that have not been properly compacted and certified be excavated and stockpiled so that the native soils can be properly prepared. The fill material should be cleansed of excessive organics and debris and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. Prior to fill placement Krazan & Associates, Inc. should inspect the bottom of the excavation to verify no additional removal will be required.

The site is covered with asphaltic concrete pavement and is surrounded by structures associated with the existing school. Associated with these developments are buried structures, such as utility lines and irrigation lines that may extend into the areas of proposed development. Demolition activities should include proper removal of any buried structures. Any buried structures, including utilities or loosely backfilled excavations encountered during construction should be properly removed and/or relocated. It is suspected that demolition activities of the existing structures will disturb the upper soils. Following demolition activities, the exposed subgrade should be cleaned to firm native ground and the resulting excavation backfilled with Engineered Fill, compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

Sandy soil conditions were encountered at the site. These cohesionless soils have a tendency to cave in trench wall excavations. Shoring or sloping back trench sidewalls may be required within these sandy soils.

After completion of the recommended site preparation, the site should be suitable for shallow footing support. The proposed structure footings may be designed utilizing an allowable bearing pressure of 2,500 psf for dead-plus-live loads. Footings should have a minimum embedment of 18 inches. Foundations can be modeled utilizing a modulus of subgrade reaction of 90 pci.

Groundwater Influence on Structures/Construction

Based on our findings and historical records, it is not anticipated that groundwater will rise within the zone of structural influence or affect the construction of foundations and pavements for the project. However, if earthwork is performed during or soon after periods of precipitation, the subgrade soils may become saturated, “pump,” or not respond to densification techniques. Typical remedial measures include: discing and aerating the soil during dry weather; mixing the soil with dryer materials; removing and replacing the soil with an approved fill material; or mixing the soil with an approved lime or cement product. Our firm should be consulted prior to implementing remedial measures to observe the unstable subgrade conditions and provide appropriate recommendations.

Site Preparation

General site clearing should include removal of vegetation; debris; existing utilities; structures including foundations; basement walls and floors; existing stockpiled soil; trees and associated root systems; rubble; rubbish; and any loose and/or saturated materials. Site stripping should extend to a minimum depth of 2 to 4 inches, or until all organics in excess of 3 percent by volume are removed. Deeper stripping may be required in localized areas. These materials will not be suitable for use as Engineered Fill. However, stripped topsoil may be stockpiled and reused in landscape or non-structural areas.

Approximately 2 to 2½ feet of fill material was encountered below the pavement section within the borings drilled at the site. The fill material predominately consisted of silty sand. The thickness and extent of fill material was determined based on limited test borings and visual observation. Thicker fill may be present at the site. Limited testing was performed on the fill soils during the time of our field and laboratory investigations. Preliminary testing on the fill material suggests that some compaction effort was applied to these soils at the time of placement. It is recommended that fill soils that have not been properly compacted and certified be excavated and stockpiled so that the native soils can be properly prepared. The fill material should be cleansed of excessive organics and debris and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. Prior to fill placement Krazan & Associates, Inc. should inspect the bottom of the excavation to verify no additional removal will be required.

The area of proposed development is located within an existing school. Several structures are located within the project site vicinity. Associated with these developments are buried structures, such as utility lines and irrigation lines that may extend into the site. Demolition activities should include proper removal of any buried structures. Any buried structures or utilities encountered during construction should be properly removed and/or relocated. The resulting excavations should be cleaned to firm native ground and backfilled with Engineered Fill, compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. Excavations, depressions, or soft and pliant areas extending below planned finish subgrade level should be cleaned to firm undisturbed soil, and backfilled with Engineered Fill. In general, any septic tanks, debris pits, cesspools, or similar structures should be entirely removed. Concrete footings should be removed to an equivalent depth of at least 3 feet below proposed footing elevations or as recommended by the Soils Engineer. Water wells should

be abandoned according to county standards. Any other buried structures should be removed in accordance with the recommendations of the Soils Engineer. The resulting excavations should be backfilled with Engineered Fill.

Following stripping, fill removal or certification operations and demolition activities, the subgrade soils in the proposed building areas should be excavated to a depth of at least 12 inches, worked until uniform and free from large clods, moisture-conditioned as necessary and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. Limits of recompaction should extend a minimum of 3 feet beyond building areas. This compaction effort should stabilize the surface soils and locate any unsuitable or pliant areas not found during our field investigation.

The upper soils, during wet winter months, become very moist due to the absorptive characteristics of the soil. Earthwork operations performed during winter months may encounter very moist unstable soils, which may require removal to grade a stable building foundation. Project site winterization consisting of placement of aggregate base and protecting exposed soils during the construction phase should be performed.

A representative of our firm should be present during all site clearing and grading operations to test and observe earthwork construction. This testing and observation is an integral part of our service as acceptance of earthwork construction is dependent upon compaction of the material and the stability of the material. The Soils Engineer may reject any material that does not meet compaction and stability requirements. Further recommendations of this report are predicated upon the assumption that earthwork construction will conform to recommendations set forth in this section and the Engineered Fill section.

Engineered Fill

The upper native soils and fill material predominately consist of silty sands, sandy silts and sands. These soils will be suitable for reuse as Engineered Fill, provided they are cleansed of excessive organics and debris.

The preferred materials specified for Engineered Fill are suitable for most applications with the exception of exposure to erosion. Project site winterization and protection of exposed soils during the construction phase should be the sole responsibility of the Contractor, since he has complete control of the project site at that time.

Imported Fill material should be predominately non-expansive granular material with a plasticity index less than 10 and a UBC Expansion Index less than 15. Imported Fill should be free from rocks and clods greater than 4 inches in diameter. All Imported Fill material should be submitted to the Soils Engineer for approval at least 48 hours prior to delivery at the site.

Fill soils should be placed in lifts approximately 6 inches thick, moisture-conditioned as necessary, and compacted to achieve at least 90 percent maximum density based on ASTM Test Method D1557. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

Drainage and Landscaping

The ground surface should slope away from building pad and pavement areas toward appropriate drop inlets or other surface drainage devices. In accordance with Section 1804 of the 2019 California Building Code, it is recommended that the ground surface adjacent to foundations be sloped a minimum of 5 percent for a minimum distance of 10 feet away from structures, or to an approved alternative means of drainage conveyance. Swales used for conveyance of drainage and located within 10 feet of foundations should be sloped a minimum of 2 percent. Impervious surfaces, such as pavement and exterior concrete flatwork, within 10 feet of building foundations should be sloped a minimum of 1 percent away from the structure. Drainage gradients should be maintained to carry all surface water to collection facilities and off-site. These grades should be maintained for the life of the project.

Utility Trench Backfill

Utility trenches should be excavated according to accepted engineering practices following OSHA (Occupational Safety and Health Administration) standards by a Contractor experienced in such work. The responsibility for the safety of open trenches should be borne by the Contractor. Traffic and vibration adjacent to trench walls should be reduced; cyclic wetting and drying of excavation side slopes should be avoided. Depending upon the location and depth of some utility trenches, groundwater flow into open excavations could be experienced, especially during or shortly following periods of precipitation.

Sandy soil conditions were encountered at the site. These cohesionless soils have a tendency to cave in trench wall excavations. Shoring or sloping back trench sidewalls may be required within these sandy soils.

Utility trench backfill placed in or adjacent to buildings and exterior slabs should be compacted to at least 90 percent of maximum density based on ASTM Test Method D1557. The utility trench backfill placed in pavement areas should be compacted to at least 90 percent of maximum density based on ASTM Test Method D1557. Pipe bedding should be in accordance with pipe manufacturer's recommendations.

The Contractor is responsible for removing all water-sensitive soils from the trench regardless of the backfill location and compaction requirements. The Contractor should use appropriate equipment and methods to avoid damage to the utilities and/or structures during fill placement and compaction.

Foundations

After completion of the recommended site preparation, the site should be suitable for shallow footing support. The proposed structures may be supported on a shallow foundation system bearing on undisturbed native soils or Engineered Fill. Spread and continuous footings can be designed for the following maximum allowable soil bearing pressures:

Load	Allowable Loading
Dead Load Only	1,875 psf
Dead-Plus-Live Load	2,500 psf
Total Load, including wind or seismic loads	3,325 psf

The footings should have a minimum depth of 18 inches below pad subgrade (soil grade) or adjacent exterior grade, whichever is lower. Footings should have a minimum width of 12 inches, regardless of load. The allowable bearing capacity can be increased by 500 psf for dead plus live loads for each additional 6 inches of embedment up to a maximum value of 4,000 psf. The foundations can be modeled utilizing a modulus of subgrade reaction of 90 pci.

The total settlement is not expected to exceed 1 inch. Differential settlement should be less than ½ inch. Most of the movement is expected to occur during construction as the loads are applied. However, additional post-construction movement may occur if the foundation soils are flooded or saturated.

Resistance to lateral footing displacement can be computed using an allowable friction factor of 0.4 acting between the base of foundations and the supporting subgrade. Lateral resistance for footings can alternatively be developed using an equivalent fluid passive pressure of 350 pounds per cubic foot acting against the appropriate vertical footing faces. The frictional and passive resistance of the soil may be combined without reduction in determining the total lateral resistance. A ⅓ increase in the above value may be used for short duration, wind, or seismic loads.

Floor Slabs and Exterior Flatwork

In areas that will utilize moisture-sensitive floor coverings, concrete slab-on-grade floors should be underlain by a water vapor retarder. The water vapor retarder should be installed in accordance with accepted engineering practice. The water vapor retarder should consist of a vapor retarder sheeting underlain by a minimum of 3 inches of compacted, clean, gravel of ¾-inch maximum size. To aide in concrete curing an optional 2 to 4 inches of granular fill may be placed on top of the vapor retarder. The granular fill should consist of damp clean sand with at least 10 to 30 percent of the sand passing the 100 sieve. The sand should be free of clay, silt, or organic material. Rock dust which is manufactured sand from rock crushing operations is typically suitable for the granular fill. This granular fill material should be compacted.

The exterior floors should be poured separately in order to act independently of the walls and foundation system. All fills required to bring the building pads to grade should be Engineered Fills.

Moisture within the structure may be derived from water vapors, which were transformed from the moisture within the soils. This moisture vapor can travel through the vapor membrane and penetrate the slab-on-grade. This moisture vapor penetration can affect floor coverings and produce mold and mildew in the structure. To reduce moisture vapor intrusion, it is recommended that a vapor retarder be installed. It is recommended that the utility trenches within the structure be compacted, as specified in

our report, to reduce the transmission of moisture through the utility trench backfill. Special attention to the immediate drainage and irrigation around the building is recommended. Positive drainage should be established away from the structure and should be maintained throughout the life of the structure. Ponding of water should not be allowed adjacent to the structure. Over-irrigation within landscaped areas adjacent to the structure should not be performed. In addition, ventilation of the structure (i.e. ventilation fans) is recommended to reduce the accumulation of interior moisture.

Lateral Earth Pressures and Retaining Walls

Walls retaining horizontal backfill and capable of deflecting a minimum of 0.1 percent of its height at the top may be designed using an equivalent fluid active pressure of 31 pounds per square foot per foot of depth. Walls that are incapable of this deflection or walls that are fully constrained against deflection may be designed for an equivalent fluid at-rest pressure of 52 pounds per square foot per foot per depth. Expansive soils should not be used for backfill against walls. The wedge of non-expansive backfill material should extend from the bottom of each retaining wall outward and upward at a slope of 2:1 (horizontal to vertical) or flatter. The stated lateral earth pressures do not include the effects of hydrostatic water pressures generated by infiltrating surface water that may accumulate behind the retaining walls; or loads imposed by construction equipment, foundations, or roadways.

During grading and backfilling operations adjacent to any walls, heavy equipment should not be allowed to operate within a lateral distance of 5 feet from the wall or within a lateral distance equal to the wall height, whichever is greater, to avoid developing excessive lateral pressures. Within this zone, only hand operated equipment ("whackers," vibratory plates, or pneumatic compactors) should be used to compact the backfill soils.

Seismic Parameters – 2019 California Building Code

The Site Class per Section 1613A of the 2019 California Building Code (2019 CBC) and ASCE 7-16, Chapter 20 is based upon the site soil conditions. It is our opinion that a Site Class D is most consistent with the subject site soil conditions. For seismic design of the structures based on the seismic provisions of the 2019 CBC, we recommend the following parameters:

Seismic Item	Value	CBC Reference
Site Class	D	Section 1613A.2.2
Site Coefficient F_a	1.335	Table 1613A.2.3 (1)
S_s	0.582	Section 1613A.2.1
S_{MS}	0.776	Section 1613A.2.3
S_{DS}	0.517	Section 1613A.2.4
Site Coefficient F_v	2.148	Table 1613A.2.3 (2)
S_1	0.226	Section 1613A.2.1

S _{M1}	0.485	Section 1613A.2.3
S _{D1}	0.323	Section 1613A.2.4
T _s	0.625	Section 1613A.2

* Based on Exception 2 of Section 11.4.8 being used in design.

Soil Cement Reactivity

Excessive sulfate in either the soil or native water may result in an adverse reaction between the cement in concrete (or stucco) and the soil. HUD/FHA and UBC have developed criteria for evaluation of sulfate levels and how they relate to cement reactivity with soil and/or water.

Soil samples were obtained from the site and tested in accordance with State of California Materials Manual Test Designation 417. The sulfate concentrations detected from these soil samples were less than 150 ppm and are below the maximum allowable values established by HUD/FHA and UBC. Therefore, no special design requirements are necessary to compensate for sulfate reactivity with the cement.

Compacted Material Acceptance

Compaction specifications are not the only criteria for acceptance of the site grading or other such activities. However, the compaction test is the most universally recognized test method for assessing the performance of the Grading Contractor. The numerical test results from the compaction test cannot be used to predict the engineering performance of the compacted material. Therefore, the acceptance of compacted materials will also be dependent on the stability of that material. The Soils Engineer has the option of rejecting any compacted material regardless of the degree of compaction if that material is considered to be unstable or if future instability is suspected. A specific example of rejection of fill material passing the required percent compaction is a fill which has been compacted with an in situ moisture content significantly less than optimum moisture. This type of dry fill (brittle fill) is susceptible to future settlement if it becomes saturated or flooded.

Testing and Inspection

A representative of Krazan & Associates, Inc. should be present at the site during the earthwork activities to confirm that actual subsurface conditions are consistent with the exploratory fieldwork. This activity is an integral part of our service, as acceptance of earthwork construction is dependent upon compaction testing and stability of the material. This representative can also verify that the intent of these recommendations is incorporated into the project design and construction. Krazan & Associates, Inc. will not be responsible for grades or staking, since this is the responsibility of the Prime Contractor.

LIMITATIONS

Soils Engineering is one of the newest divisions of Civil Engineering. This branch of Civil Engineering is constantly improving as new technologies and understanding of earth sciences advance. Although your site was analyzed using the most appropriate and most current techniques and methods, undoubtedly there will be substantial future improvements in this branch of engineering. In addition to advancements in the field of Soils Engineering, physical changes in the site, either due to excavation or fill placement, new agency regulations, or possible changes in the proposed structure after the soils report is completed may require the soils report to be professionally reviewed. In light of this, the Owner should be aware that there is a practical limit to the usefulness of this report without critical review. Although the time limit for this review is strictly arbitrary, it is suggested that 2 years be considered a reasonable time for the usefulness of this report.

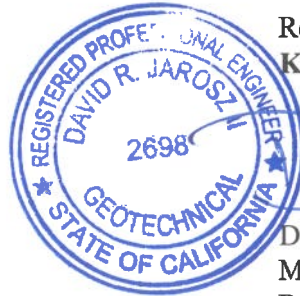
Foundation and earthwork construction is characterized by the presence of a calculated risk that soil and groundwater conditions have been fully revealed by the original foundation investigation. This risk is derived from the practical necessity of basing interpretations and design conclusions on limited sampling of the earth. The recommendations made in this report are based on the assumption that soil conditions do not vary significantly from those disclosed during our field investigation. If any variations or undesirable conditions are encountered during construction, the Soils Engineer should be notified so that supplemental recommendations may be made.

The conclusions of this report are based on the information provided regarding the proposed construction. If the proposed construction is relocated or redesigned, the conclusions in this report may not be valid. The Soils Engineer should be notified of any changes so the recommendations may be reviewed and re-evaluated.

This report is a Geotechnical Engineering Investigation with the purpose of evaluating the soil conditions in terms of foundation design. The scope of our services did not include any Environmental Site Assessment for the presence or absence of hazardous and/or toxic materials in the soil, groundwater, or atmosphere; or the presence of wetlands. Any statements, or absence of statements, in this report or on any boring log regarding odors, unusual or suspicious items, or conditions observed, are strictly for descriptive purposes and are not intended to convey engineering judgment regarding potential hazardous and/or toxic assessment.

The geotechnical engineering information presented herein is based upon professional interpretation utilizing standard engineering practices and a degree of conservatism deemed proper for this project. It is not warranted that such information and interpretation cannot be superseded by future geotechnical engineering developments. We emphasize that this report is valid for the project outlined above and should not be used for any other sites.

If you have any questions or if we may be of further assistance, please do not hesitate to contact our office at (559) 348-2200.



Respectfully submitted,
KRAZAN & ASSOCIATES, INC.

David R. Jarosz, II
Managing Engineer
RGE No. 2698/RCE No. 60185

DRJ:ht

APPENDIX A

FIELD AND LABORATORY INVESTIGATIONS

Field Investigation

The field investigation consisted of a surface reconnaissance and a subsurface exploratory program. Two 4½-inch exploratory borings were advanced. The boring locations are shown on the site plan.

The soils encountered were logged in the field during the exploration and, with supplementary laboratory test data, are described in accordance with the Unified Soil Classification System.

Modified standard penetration tests and standard penetration tests were performed at selected depths. These tests represent the resistance to driving a 2½-inch and 1½-inch diameter split barrel sampler, respectively. The driving energy was provided by a hammer weighing 140 pounds falling 30 inches. Relatively undisturbed soil samples were obtained while performing this test. Bag samples of the disturbed soil were obtained from the auger cuttings. The modified standard penetration tests are identified in the sample type on the boring logs with a full shaded in block. The standard penetration tests are identified in the sample type on the boring logs with half of the block shaded. All samples were returned to our Clovis laboratory for evaluation.
















Laboratory Investigation

The laboratory investigation was programmed to determine the physical and mechanical properties of the foundation soil underlying the site. Test results were used as criteria for determining the engineering suitability of the surface and subsurface materials encountered.

In-situ moisture content, dry density, consolidation, direct shear, and sieve analysis tests were completed for the undisturbed samples representative of the subsurface material. These tests, supplemented by visual observation, comprised the basis for our evaluation of the site material.

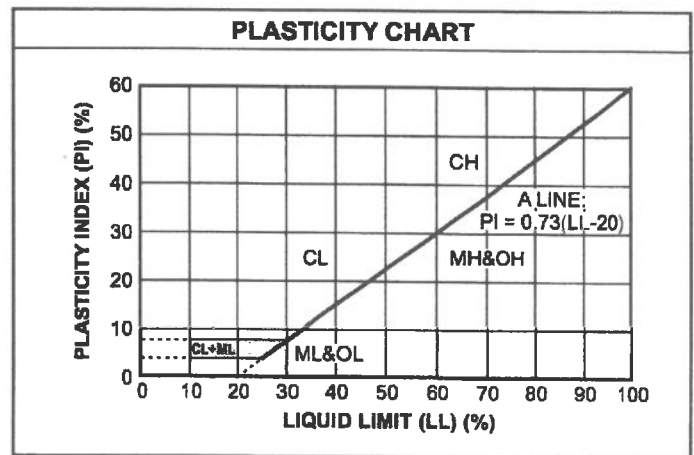
The logs of the exploratory borings and laboratory determinations are presented in this Appendix.

UNIFIED SOIL CLASSIFICATION SYSTEM

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART		
COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)		
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	
	 GW	Well-graded gravels, gravel-sand mixtures, little or no fines
	 GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	
	 GM	Silty gravels, gravel-sand-silt mixtures
	 GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	
	 SW	Well-graded sands, gravelly sands, little or no fines
	 SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	
	 SM	Silty sands, sand-silt mixtures
	 SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)		
SILTS AND CLAYS Liquid limit less than 50%	 ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
	 CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
	 OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit 50% or greater	 MH
 CH		Inorganic clays of high plasticity, fat clays
 OH		Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS	 PT	Peat and other highly organic soils

CONSISTENCY CLASSIFICATION	
Description	Blows per Foot
<i>Granular Soils</i>	
Very Loose	< 5
Loose	5 – 15
Medium Dense	16 – 40
Dense	41 – 65
Very Dense	> 65
<i>Cohesive Soils</i>	
Very Soft	< 3
Soft	3 – 5
Firm	6 – 10
Stiff	11 – 20
Very Stiff	21 – 40
Hard	> 40

GRAIN SIZE CLASSIFICATION		
Grain Type	Standard Sieve Size	Grain Size in Millimeters
Boulders	Above 12 inches	Above 305
Cobbles	12 to 13 inches	305 to 76.2
Gravel	3 inches to No. 4	76.2 to 4.76
	Coarse-grained 3 to ¾ inches	76.2 to 19.1
	Fine-grained ¾ inches to No. 4	19.1 to 4.76
Sand	No. 4 to No. 200	4.76 to 0.074
	Coarse-grained No. 4 to No. 10	4.76 to 2.00
	Medium-grained No. 10 to No. 40	2.00 to 0.042
	Fine-grained No. 40 to No. 200	0.042 to 0.074
Silt and Clay	Below No. 200	Below 0.074



Log of Boring B1

Project: Kingsburg High School Ag Shop Shade Structure

Project No: 012-20093

Client: The Taylor Group Architects

Figure No.: A-1

Location: Mendocino Avenue, Kingsburg, California

Logged By: Wayne Andrade

Depth to Water >

Initial: None

At Completion: None

SUBSURFACE PROFILE			SAMPLE				Penetration Test blows/ft	Water Content (%)					
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.		20	40	60	10	20	30
0		Ground Surface											
		ASPHALTIC CONCRETE = 3 inches AGGREGATE BASE = 6 inches											
2		SILTY SAND (SM) FILL, fine- to medium-grained; brown, moist, drills easily Dark brown below 2 feet	122.5	8.1		50+							
4		SILTY SAND (SM) Loose, fine- to medium-grained; light brown, damp, drills easily	114.1	4.2		14							
8		SAND (SP) Medium dense, fine- to medium-grained; light gray, damp, drills easily	95.5	1.6		11							
14		SILTY SAND (SM) Very dense, fine- to medium-grained, weakly cemented; light brown, moist, drills hard	110.2	8.2		50+							
18		SILTY SAND (SM) Medium dense, fine- to medium-grained; light brown, moist, drills easily											
20													

Drill Method: Hollow Stem

Drill Date: 5-22-20

Drill Rig: CME 55-2

Krazan and Associates

Hole Size: 4½ Inches

Driller: Chris Wyneken

Elevation: 50 Feet

Sheet: 1 of 3

Log of Boring B1

Project: Kingsburg High School Ag Shop Shade Structure

Project No: 012-20093

Client: The Taylor Group Architects

Figure No.: A-1

Location: Mendocino Avenue, Kingsburg, California

Logged By: Wayne Andrade

Depth to Water >

Initial: None

At Completion: None

SUBSURFACE PROFILE			SAMPLE				Penetration Test blows/ft	Water Content (%)						
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.		20	40	60	10	20	30	40
22		Fine-grained and damp below 24 feet	108.6	8.9	▲	26	▲				■			
24														
26		SANDY SILT (ML) Very dense, fine-grained; light gray, moist, drills hard	98.9	4.4	▲	24	▲				■			
28														
30		SAND (SP) Dense, fine- to medium-grained; light gray, damp, drills easily	98.6	23.6	▲	50+	▲				■			
32														
34		SILTY SAND (SM) Very dense, fine-grained; light grayish-brown, damp, drills hard	95.0	1.9	▲	32	▲				■			
36														
38														
40														

Drill Method: Hollow Stem

Drill Date: 5-22-20

Drill Rig: CME 55-2

Krazan and Associates

Hole Size: 4½ Inches

Driller: Chris Wyneken

Elevation: 50 Feet

Sheet: 2 of 3

Log of Boring B1

Project: Kingsburg High School Ag Shop Shade Structure

Project No: 012-20093

Client: The Taylor Group Architects

Figure No.: A-1

Location: Mendocino Avenue, Kingsburg, California

Logged By: Wayne Andrade

Depth to Water >

Initial: None

At Completion: None

SUBSURFACE PROFILE			SAMPLE				Penetration Test blows/ft			Water Content (%)				
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.								
							20	40	60	10	20	30	40	
42	[Symbol]	Dense and drills firmly below 44 feet	114.1	3.4	▲	50+				■				
44														
46			108.3	3.3	▲	33				■				
50		End of Borehole												
52														
54														
56														
58														
60														

Drill Method: Hollow Stem

Drill Date: 5-22-20

Drill Rig: CME 55-2

Krazan and Associates

Hole Size: 4½ Inches

Driller: Chris Wyneken

Elevation: 50 Feet

Sheet: 3 of 3

Log of Boring B2

Project: Kingsburg High School Ag Shop Shade Structure

Project No: 012-20093

Client: The Taylor Group Architects

Figure No.: A-2

Location: Mendocino Avenue, Kingsburg, California

Logged By: Wayne Andrade

Depth to Water >

Initial: None

At Completion: None

SUBSURFACE PROFILE			SAMPLE				Penetration Test blows/ft			Water Content (%)				
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Penetration Test			Water Content (%)				
							20	40	60	10	20	30	40	
0		Ground Surface												
		ASPHALTIC CONCRETE = 3 inches AGGREGATE BASE = 6 inches												
2		SILTY SAND (SM) FILL, fine- to medium-grained; brown, damp, drills easily	109.8	3.8		16								
4		SILTY SAND (SM) Medium dense, fine- to medium-grained; light brown/brown, damp, drills easily Loose below 5 feet												
6			133.8	3.8		12								
10		SAND (SP) Medium dense, fine- to medium-grained; light gray, damp, drills easily	95.3	7.1		16								
14		SILTY SAND (SM) Very dense, fine- to medium-grained, weakly cemented; light brown, moist, drills hard	100.8	9.6		50+								
18		SILTY SAND (SM) Medium dense, fine- to medium-grained; light brown, moist, drills easily												
20														

Drill Method: Solid Flight

Drill Date: 5-22-20

Drill Rig: CME 55-2

Krazan and Associates

Hole Size: 4½ Inches

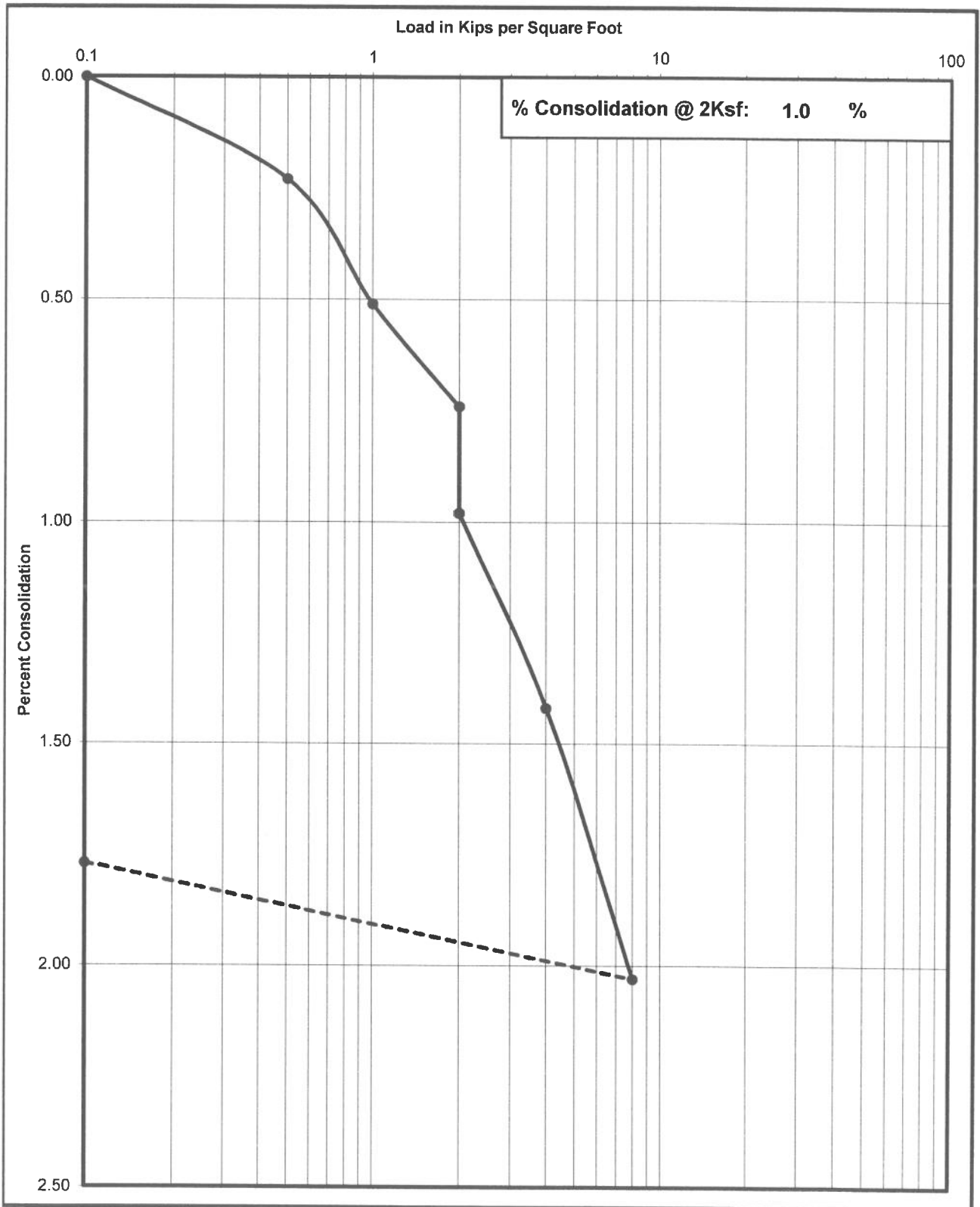
Driller: Chris Wyneken

Elevation: 20 Feet

Sheet: 1 of 1

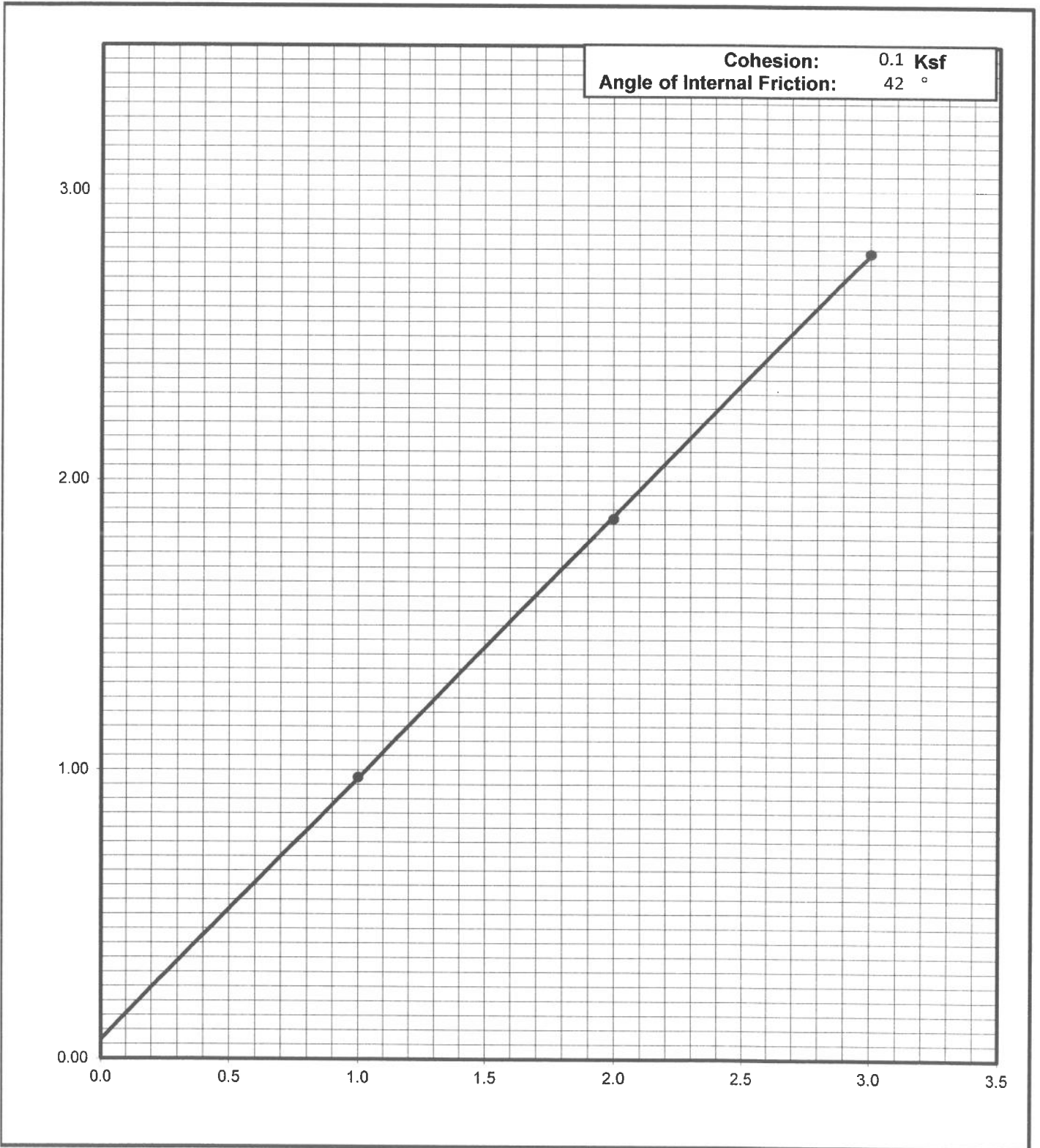
Consolidation Test

Project No	Boring No. & Depth	Date	Soil Classification
012-20093	B2 @ 2-3'	6/2/2020	SM

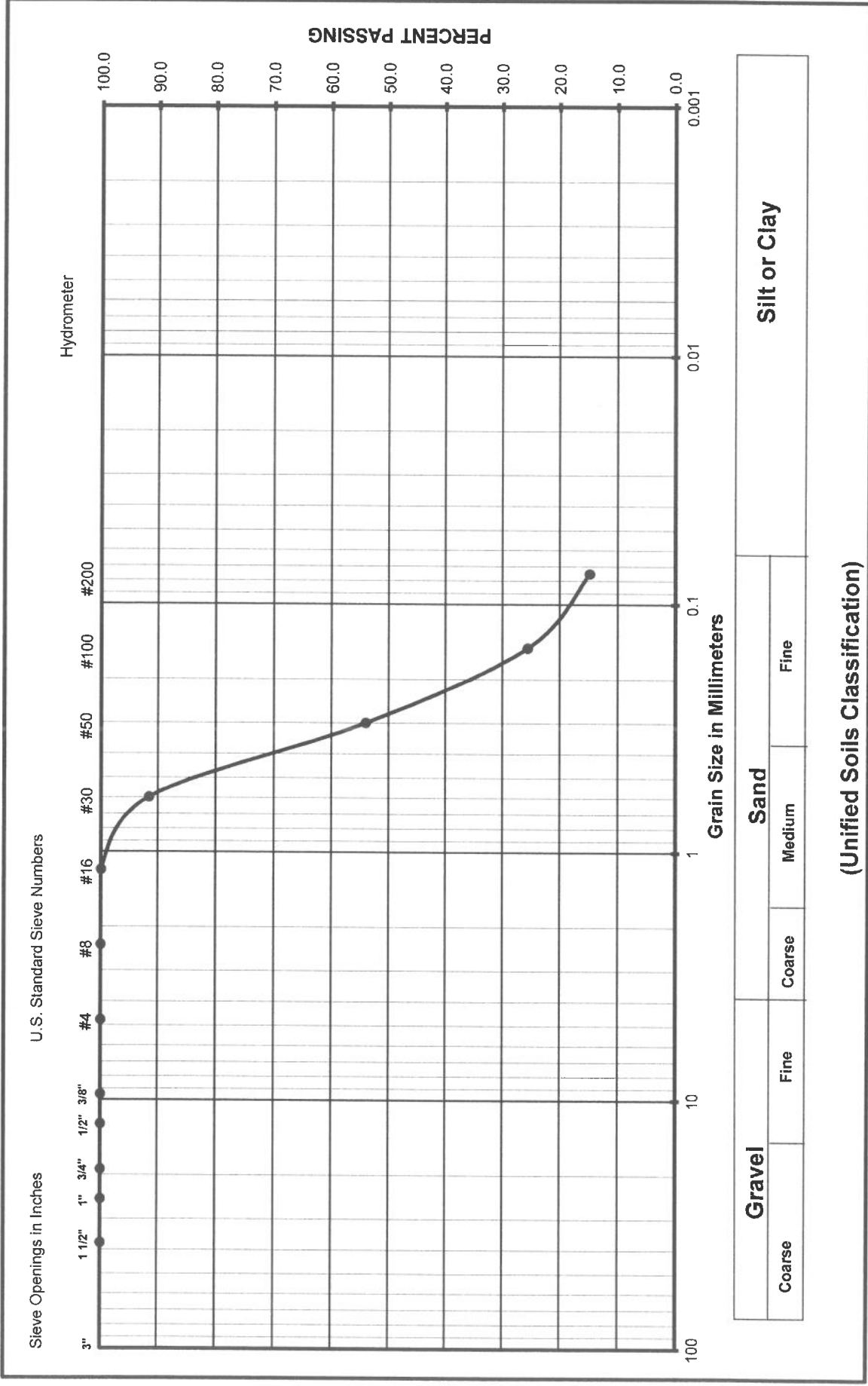


Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

Project Number	Boring No. & Depth	Soil Type	Date
012-20093	B1 @ 2-3'	SM	6/2/2020



Grain Size Analysis



Gravel		Sand			Silt or Clay
		Fine	Coarse	Medium	

(Unified Soils Classification)

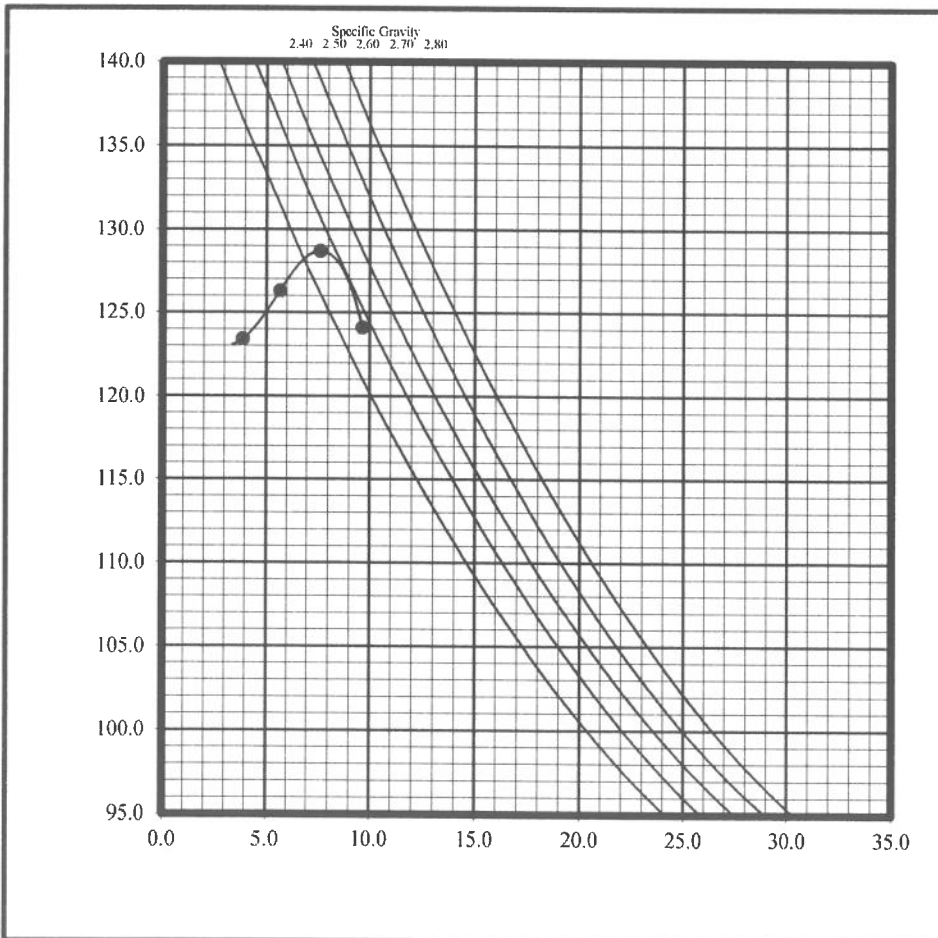
Project Name
 Project Number
 Soil Classification
 Sample Number

Kingsburg High School Ag Shop Shade Structure
 012-20093
 SM
 B2 @ 2-3'

Laboratory Compaction Characteristics of Soil using Modified Effort (56,000 ft. - lbf/ft³) ASTM D1557

Project Number	012-20093	Sample Number	C1
Project Name	Kingsburg HS	Soil Classification	SM
Technician	SW	Soil Description	Brn Silty Sand
Date	5/26/2020	Method	D1557a
Sample Location	B1 @ 1-3.5'		

	1	2	3	4
Mass of Moist Specimen & Mold, gm	4090.8	4053.4	4013.6	3934.5
Mass of Compaction Mold, gm	1998.0	1998.0	1998.0	1998.0
Mass of Moist Specimen, gm	2092.8	2055.4	2015.6	1936.5
Volume of Mold, cu./ft.	0.0333	0.0333	0.0333	0.0333
Wet Density, lbs./cu.ft.	138.6	136.1	133.4	128.2
Mass of Moisture (Wet), gm	200.0	200.0	200.0	200.0
Mass of Moisture (Dry), gm	185.8	182.4	189.3	192.5
Moisture Content (%)	7.6	9.6	5.7	3.9
Dry Density, lbs./cu.ft.	128.7	124.1	126.3	123.4



**Maximum Dry Density,
lbs.cu.ft.**

128.7

Optimum Moisture Content

7.6%

SDS#: _____

APPENDIX B
EARTHWORK SPECIFICATIONS

GENERAL

When the text of the report conflicts with the general specifications in this appendix, the recommendations in the report have precedence.

SCOPE OF WORK: These specifications and applicable plans pertain to and include all earthwork associated with the site rough grading, including but not limited to the furnishing of all labor, tools, and equipment necessary for site clearing and grubbing, stripping, preparation of foundation materials for receiving fill, excavation, processing, placement and compaction of fill and backfill materials to the lines and grades shown on the project grading plans, and disposal of excess materials.

PERFORMANCE: The Contractor shall be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications. This work shall be inspected and tested by a representative of Krazan and Associates, Inc., hereinafter known as the Soils Engineer and/or Testing Agency. Attainment of design grades when achieved shall be certified by the project Civil Engineer. Both the Soils Engineer and the Civil Engineer are the Owner's representatives. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plans, he shall make the necessary readjustments until all work is deemed satisfactory as determined by both the Soils Engineer and the Civil Engineer. No deviation from these specifications shall be made except upon written approval of the Soils Engineer, Civil Engineer or project Architect.

No earthwork shall be performed without the physical presence or approval of the Soils Engineer. The Contractor shall notify the Soils Engineer at least 2 working days prior to the commencement of any aspect of the site earthwork.

The Contractor agrees that he shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify and hold the Owner and the Engineers harmless from any and all liability, real or alleged, in connection with the performance of work on this project, except for liability arising from the sole negligence of the Owner or the Engineers.

TECHNICAL REQUIREMENTS: All compacted materials shall be densified to a density not less than 90 percent relative compaction based on ASTM Test Method D1557 or CAL-216, as specified in the technical portion of the Soil Engineer's report. The location and frequency of field density tests shall be as determined by the Soils Engineer. The results of these tests and compliance with these specifications shall be the basis upon which satisfactory completion of work will be judged by the Soils Engineer.

SOILS AND FOUNDATION CONDITIONS: The Contractor is presumed to have visited the site and to have familiarized himself with existing site conditions and the contents of the data presented in the soil report.

The Contractor shall make his own interpretation of the data contained in said report, and the Contractor shall not be relieved of liability under the Contract documents for any loss sustained as a result of any variance between conditions indicated by or deduced from said report and the actual conditions encountered during the progress of the work.

DUST CONTROL: The work includes dust control as required for the alleviation or prevention of any dust nuisance on or about the site or the borrow area, or off-site if caused by the Contractor's operation either during the performance of the earthwork or resulting from the conditions in which the Contractor leaves the site. The Contractor shall assume all liability, including court costs of codefendants, for all claims related to dust or windblown materials attributable to his work.

SITE PREPARATION

Site preparation shall consist of site clearing and grubbing and the preparations of foundation materials for receiving fill.

CLEARING AND GRUBBING: The Contractor shall accept the site in this present condition and shall demolish and/or remove from the area of designated project earthwork all structures, both surface and subsurface, trees, brush, roots, debris, organic matter, and all other matter determined by the Soils Engineer to be deleterious or otherwise unsuitable. Such materials shall become the property of the Contractor and shall be removed from the site.

Tree root systems in proposed building areas should be removed to a minimum depth of 3 feet and to such an extent which would permit removal of all roots larger than 1 inch. Tree roots removed in parking areas may be limited to the upper 1½ feet of the ground surface. Backfill of tree root excavations should not be permitted until all exposed surfaces have been inspected and the Soils Engineer is present for the proper control of backfill placement and compaction. Burning in areas which are to receive fill materials shall not be permitted.

SUBGRADE PREPARATION: Surfaces to receive Engineered Fill, building or slab loads shall be prepared as outlined above, excavated/scarified to a depth of 12 inches, moisture-conditioned as necessary, and compacted to 90 percent relative compaction.

Loose soil areas, areas of uncertified fill, and/or areas of disturbed soils shall be moisture-conditioned as necessary and recompacted to 90 percent relative compaction. All ruts, hummocks, or other uneven surface features shall be removed by surface grading prior to placement of any fill materials. All areas which are to receive fill materials shall be approved by the Soils Engineer prior to the placement of any of the fill material.

EXCAVATION: All excavation shall be accomplished to the tolerance normally defined by the Civil Engineer as shown on the project grading plans. All over-excavation below the grades specified shall be backfilled at the Contractor's expense and shall be compacted in accordance with the applicable technical requirements.

FILL AND BACKFILL MATERIAL: No material shall be moved or compacted without the presence of the Soils Engineer. Material from the required site excavation may be utilized for construction site fills provided prior approval is given by the Soils Engineer. All materials utilized for constructing site fills shall be free from vegetation or other deleterious matter as determined by the Soils Engineer.

PLACEMENT, SPREADING AND COMPACTION: The placement and spreading of approved fill materials and the processing and compaction of approved fill and native materials shall be the responsibility of the Contractor. However, compaction of fill materials by flooding, ponding, or jetting shall not be permitted unless specifically approved by local code, as well as the Soils Engineer.

Both cut and fill areas shall be surface-compacted to the satisfaction of the Soils Engineer prior to final acceptance.

SEASONAL LIMITS: No fill material shall be placed, spread, or rolled while it is frozen or thawing or during unfavorable wet weather conditions. When the work is interrupted by heavy rains, fill operations shall not be resumed until the Soils Engineer indicates that the moisture content and density of previously placed fill are as specified.