SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

BOOK 1 OF 1

PROJECT MANUAL

SCHOOL

MARTIN LUTHER KING JR. ELEMENTARY
480 Little River Way
Sacramento, CA 95831

Schoolyard Greening

Sacramento County

BID PACKAGE

#02-123991
SCUSD Project Number
67439-547

SACRAMENTO CITY UNIFIED SCHOOL DISTRICT, PROCUREMENT SECTION

Submitted to the Sacramento City Unified School District by:

CONSTRUCTION MANAGER:
CM Name
CM Address
Address

ARCHITECT:
Siegfried
3428 Brookside Road
Stockton, CA 95219

Divisions 01, 02, 10, 12, 31, 32 and 33 of the Specifications herein have been prepared by, or under the direction of, the following licensed professional:

Civil Engineer:
Siegfried Engineering
3428 Brookside Road
Stockton, CA 95219
Phone: 209-943-2021
Paul Schneider License:
C62498 Expires: 9/30/2027

Division 32 of the Specifications herein have been prepared by, or under the direction of, the following licensed Professional:

Landscape Architect:
Siegfried Engineering 3428 Brookside Road
Stockton, CA 95219
Phone: 209-943-2021
Thais Del Castillo License: 4836
Expires:5/30/27

TABLE OF CONTENTS

DIVISIONS 0 AND 1 - BIDDING AND CONTRACT REQUIREMENTS

DIVISION	SECTION TITLE	# OF PAGES
DIVISION 0	BIDDING AND CONTRACT REQUIREMENTS	
00 11 13	Notice to Bidders	3
00 21 13	Instructions to Bidders	5
00 21 16	Proposal Form Instructions	2
00 42 00	Proposal Form	7
00 52 00	Form of Contract	6
00 61 13.13	Payment Bond Form	2
00 61 13.16	Performance Bond Form	3
00 65 36	Guarantee Form	1
00 72 00	General Conditions	69
00 73 00	Special Provisions/Scope of Work/Schedule/DVBE Requirements/Forms	15
DIVISION 1	GENERAL REQUIREMENTS	
01 21 13	Cash Allowances	1
01 31 00	Project Management Internet Communication Requirements	3
01 31 19	Project Meetings & Procedures	1
01 35 16	Alteration Project Procedures	4
01 41 00	Additional Requirements for DSA-Reviewed Projects	2
01 45 00	Quality Control	3
01 50 00	Temporary Facilities and Controls	4
01 71 23	Field Engineering & Survey Controls	1
01 73 29	Cutting and Patching	3
01 91 13	General Commissioning Requirements	19

DIVISIONS 2 THROUGH 33 - TECHNICAL REQUIREMENTS

DIVISION	SECTION TITLE	# OF PAGES
DIVISION 2	EXISTING CONDITIONS	
02 41 00	Site Demolition	6
DIVISION 3	CONCRETE	
03 10 00	Concrete Forming and Accessories	5
03 20 00	Concrete Reinforcing	4
03 30 00	Cast-In-Place Concrete	14
DIVISION 4	MASONRY	
	Not Used	
DIVISION 5	METALS	
	Not Used	
DIVISION 6	WOOD, PLASTICS AND COMPOSITES	
06 10 00	Rough Carpentry	7
DIVISION 7	THERMAL AND MOISTURE CONTROL	
	Not Used	
DIVISION 8	OPENINGS	
	Not Used	
DIVISION 9	FINISHES	
	Not Used	
DIVISION 10	SPECIALTIES	
	Not Used	
DIVISION 11	EQUIPMENT	
	Not Used	
DIVISION 12	FURNISHINGS	
12 93 00	Site Furnishings	5
DIVISION 13	SPECIAL CONSTRUCTION	
	Not Used	
DIVISION 14	CONVEYING EQUIPMENT	
	Not Used	
DIVISION 22	PLUMBING	
	Not Used	
DIVISION 23	HEATING VENTILATING & AIR CONDITIONING	
23 01 30.51	Not Used	
DIVISION 26	ELECTRICAL	

	Not Used	
DIVISION	SECTION TITLE	# OF PAGES
DIVISION 27	COMMUNICATIONS	
	Not Used	
DIVISION 28	ELECTRONIC SAFETY & SECURITY	
	Not Used	
DIVISION 31	EARTHWORK	
31 00 00	Earthwork	9
31 13 16	Tree Protection	4
31 23 33	Trenching & Backfilling	6
DIVISION 32	EXTERIOR IMPROVEMENTS	
32 01 90	Landscape Maintenance	7
32 12 00	Asphalt Concrete Paving	9
32 16 00	Site Concrete	13
32 17 26	Truncated Domes	4
32 31 13	Chain Link Fences and Gates	4
32 80 00	Irrigation	14
32 90 00	Landscaping	12
DIVISION 33	UTILITIES	
33 00 00	Site Utilities	13
33 40 00	Site Drainage	7

END OF TABLE OF CONTENTS

Section 00 11 13 - NOTICE TO BIDDERS

ARTICLE 1. GENERAL

Section 1.01 Notice is hereby given that the Board of Education of the Sacramento City Unified School District, hereinafter referred to as "District," will receive sealed Proposals for

Martin Luther King Jr. Elementary School, BP#67439-547 ("Schoolyard Greening")

Notice is further given that sealed bids will be received by the District ***by electronic submittal only*** until [time] p.m., Pacific [Daylight Savings] [Standard] Time, on [date]. All bids timely received will be publicly opened and read online via Zoom [following the bid deadline] [at X:XX p.m. on [date]]. No bid will be considered unless it is received prior to the bidding deadline.

Notice is hereby given that the Project is a public works project within the requirements of Division 2, Part 7, Chapter 1 of the California Labor Code, and that each bidder and listed subcontractor is required to be registered pursuant to Labor Code section 1725.5 at the time of bidding. ***Failure of the bidder to be registered at the time of bidding shall render the bid non-responsive and unavailable for award. Bidder's listing of an unregistered subcontractor may render the bid non-responsive and unavailable for award unless such failure is the result of an inadvertent error and the provisions of Labor Code section 1771.1 apply.***

[Notice is hereby given that the Project is subject to the requirements of Public Contract Code section 20111.6 as a project funded under the Leroy F. Greene School Facilities Act of 1998 or a project that involves a projected expenditure of one million dollars ($1,000,000) or more and is funded from a state school bond. As such, the District will accept bids only from Bidders prequalified by the District. **The District's Prequalification Application is done on-line. The direct link to the on-line application is _____ [insert website link].** In addition, any electrical, mechanical, and plumbing subcontractors must be pre-qualified by the District. A list of pre-qualified contractors and electrical, mechanical, and plumbing subcontractors is posted on the District's website at _____[Insert link]. **The District will not consider any bid from a Bidder that is not pre-qualified or that lists an electrical, mechanical, or plumbing subcontractor that is not pre-qualified.**

Contractors are required to submit prequalification packages **thirty (30) days prior to bid date or within five (5) days of the advertisement for bid of a project,** so that they may be notified of prequalification status well in advance of upcoming projects.**]**

License required: _____

Engineer's Estimate: $_____

Proposals are due:

BID INFORMATION
Location: Sacramento City Unified School District, **Address**
Contact:
Date:
Time:

At this time such proposals will be opened and publicly read.

Section 1.02 Pre-bid conference will be held at:

PRE-BID CONFERENCE INFORMATION

Location: Martin Luther King Jr. Elementary School, 480 Little River Way, Sacramento, CA 95831
Contact:
Date:
Time:

[The pre-bid conference will be held electronically. The live online conference will commence at [time] via Zoom. Bidders will be required to sign-in electronically to verify attendance. Bidders are encouraged to test their Internet viewing capability in advance as the District assumes no responsibility for connectivity or other technical viewing problems during the pre-bid conference and connectivity or other technical viewing problems will not excuse Bidders from the requirement that they attend and participate. [Following the pre-bid conference, the District will conduct an in-person site walk on [date] at [time] to familiarize bidders with existing site conditions.]

Attendance for duration of meeting is mandatory and each prime contract bidder (hereinafter referred to as "Bidder" or "Bidders") shall be required to certify, as part of its Proposal Form, that it attended the entirety of the Pre-Bid conference. Failure to include the certification will render the bid non-responsive. For all Pre-Bid visits (other than the Pre-bid conference), Bidder must make an appointment with the school prior to visiting the Site.

Section 1.03 Overall coordination of the Project will be the responsibility of the District Representative. All inquiries regarding the bid are to be directed to _____[insert name, email and telephone number**]**

Section 1.04 Contracts for construction will be direct prime contracts with the District. All Project procedures and documents are designed to facilitate delivery of the Project through prime construction contracts. The District's forms shall be used for all documents. Bidders shall read and review the Bidding Documents carefully, and shall familiarize themselves thoroughly with all requirements.

Section 1.05 Each bid proposal shall conform to the requirements of the Contract Documents. The bid documents may be obtained at bidder's expense from _____[insert location/address/telephone number] or electronically at [insert website location for electronic copies of the bid documents from the architect]. Bid documents are also available to be downloaded from the District website at_____**[insert District's website for electronic copies of the bid docs]**.

Section 1.06 No bid will be considered unless it is accompanied by Cashier's Check, Certified Check or Bid Bond from a surety authorized to do business in California for ten percent (10%) of the total amount of the bid, including additive Alternate Bids, made payable to the District. The above-mentioned check or bid bond shall be given as a guarantee that the Bidder shall, if selected by the District, execute the Contract, in conformance with the Contract Documents. For more information, refer to Section 00 21 13, Article 1, Section 1.06.

Section 1.07 Bids shall not expire for a period of 90 days after the date set for the bid opening. Within ten (10) days after notification of the District's Notice of Intent to Award the Contract, the successful Bidder will be required to furnish a Labor and Material Bond and a Faithful Performance Bond. For further information, refer to Sections 00 61 13.13 and 00 61 13.16.

Section 1.08 The District is an equal opportunity employer. Refer to General Conditions Section 00 72 00, Article 7, Section 7.09. The District encourages the participation of DVBE businesses. Refer to Special Provisions Section 00 73 00.

Section 1.09 The successful Bidder shall be required to pay its workers on this Project a sum not less than the general prevailing rate (applicable at time of bid advertisement date) of per diem wages and not less than the general prevailing rate for holiday and overtime work for work of a similar character in the locality in which the

Project is performed, as provided under California Labor Code Sections 1726-1861. Copies of the prevailing rate of per diem wages may be obtained on the internet at https://www.dir.ca.gov/OPRL/DPreWageDetermination.htm. Refer to General Conditions Section 00 72 00, Article 7. The Project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

Section 1.10 The governing board of the District reserves the right to reject any and all proposals and to waive any irregularity in any proposals received.

Section 1.11 At the request and expense of the successful Bidder, eligible securities shall be accepted in lieu of retention payments to insure performance under the Contract, pursuant to California Public Contract Code Section 22300. Refer to Exhibit H and General Conditions Section 00 72 00, Article 12, Section 12.05. Said securities shall be deposited prior to the submission of the successful Bidder's first progress payment application.

Section 1.12 The District participates in all available rebate programs. The successful Bidder agrees to notify the District of any available rebate of which the successful Bidder is aware, and to provide the District with invoices and all other documentation necessary to claim any available rebate. The District will apply for available rebates, and the rebates will be paid directly to the District, not the successful Bidder.

Section 1.13 The successful Bidder shall have at least one supervising technician on call in the event that the existing fire alarm, security clocks, intercom, telephone and data systems are damaged during the course of construction or the Contract requires relocation of existing devices. The supervising technician is required to be on Site during all aspects of repair, modifications and testing. For fire alarm modifications and repairs the supervising technician is required to have at a minimum NICET LEVEL 2 Certification or equal. The District may consider optional Underwriters Laboratories Certification, factory training or contractor demonstrated equal experience/training with prior approval. The supervising technician must also have a minimum 5 years installation experience.

END OF SECTION

Section 00 21 13 - INSTRUCTIONS TO BIDDERS

ARTICLE 1. GENERAL

Section 1.01 Definitions

A. The Project Team consists of the following:

The District:	Sacramento City Unified School District
The District Representative:	
The Architect:	
The Project:	Martin Luther King Jr. Elementary School Schoolyard Greening, BP#67439-547
The Project Address:	
The Division of the State Architect (DSA).	
The Inspector.	
The Contractor(s).	

Section 1.02 Bidding Documents

The "Bidding Documents" shall include the Notice to Bidders, Instructions to Bidders, Proposal Forms, Subcontractor Listing Form, Non-collusion Declaration, Agreement for Construction, Bid Security, Performance/Labor & Material Bond Forms, the General Conditions, the Special Provisions, the General Requirements, Exhibits, the Technical Specifications, the Contract Drawings and Plans, the Hazardous Materials Requirements, Addenda, Preliminary Construction Schedule and the District's Standard Forms.

A. Information regarding cost and location to obtain the Bidding Documents is found in the Notice to Bidders Section 00 11 13, Article 1, Section 1.05.

B. Bidders shall use complete sets of Bidding Documents in preparing proposals. Bidders are responsible for ascertaining that the Bidding Documents upon which their Proposals are based are complete sets.

C. Bidding Documents are provided to Bidders for bidding only. No other use is permitted.

D. Should a Bidder find discrepancies, ambiguities, inconsistencies, errors or omissions in the Bidding Documents, Contract Documents and/or applicable Federal, State, and local regulations or requirements, and/or should Bidder have any doubt about the meaning of any of the Contract Documents, the Bidder shall notify _____[insert name and email] in writing. Bidder's questions shall be submitted no later than ten (10) working days before the bid opening. The District will consult with the Architect, who is solely responsible for clarification and interpretation.

E. The District will forward written clarifications to all prime contract Bidders in the form of Addenda (faxed and/or mailed).

F. Each Bidder shall ascertain, prior to submitting a proposal, that every Addendum issued prior to the Bid Date has been considered, and shall acknowledge receipt of each Addendum on the Proposal form. Each Addendum will become a part of the Contract for Construction.

G. Bids are sums stipulated in Proposals for which Bidders propose to perform the Work.

H. Base Bids are sums stipulated in Proposals for which Bidders offer to perform the Work, and from which Alternate Bids may be added or deleted. The Total Base Bid Amount is the total of the Base Bid plus the required allowances, if any, stated on the Proposal Form. The Total Base Bid Amount will be the Contract Amount.

I. Alternate Bids are sums which may be added to or deleted from Base Bids for the performance of Alternate Work, as delineated in the Bidding Documents.

J. Unit Prices are sums included in Proposals as Bids per unit measure of materials and/or services, as required in the Bidding Documents.

K. Proposals are complete, properly executed forms including Base Bids, Alternate Bids, Unit Prices and other information requested by the District.

L. Bidders are qualified contractors who submit Proposals to the District for Work as Prime Contractors on the Project.

M. Subcontractors are those who will perform Work or labor or render service to the Bidder.

N. Except as provided, communication with the District regarding the substance of the Bid or any Proposal outside of the Mandatory Pre-Bid Conference, including without limitation communication with District Employees or any Board member, is prohibited. Notwithstanding the foregoing, potential Bidder may direct questions related to the Bidding Documents to: _____[insert name and email] in writing.

Section 1.03 Pre-Bid Conference

The date, time and location of the Pre-bid Conference are found in the Notice to Bidders Section 00 11 13, Article 1, Section 1.02.

Section 1.04 Contract Schedule

For information regarding the Contract Schedule and Contractor's scheduling requirements, refer to General Conditions, Section 00 72 00, Article 13, and Special Provisions Section 00 73 00.

Section 1.05 Liquidated Damages

Refer to Special Provisions Section 00 73 00.

Section 1.06 Bid Security

A. All bids must be valid for the time specified in the Notice to Bidders, Section 00 11 13, Article 1, Section 1.07.

B. Each proposal shall be accompanied by Bid Security, pledging that the Bidder will enter into a contract with the District in accordance with the terms stated in the proposal, and will furnish bonds as described in Section 00 61 13.13. The Bid Security for the two lowest responsive responsible Bidders will be returned to Bidders within ten (10) days after construction contracts have been signed. Should the Bidder fail or refuse to enter into such a contract or fail to furnish such Bonds, the Bidder shall be liable for all the cost of securing the supplies or service which exceeds the amount of its bid.

C. Bid Security shall be in the amount of ten percent (10%) of the total Bid(s), including additive Alternate Bids. Bid Security for each proposal containing Bids for multiple Bid Packages shall be in the amount of ten percent (10%) of the total Base Bids for all Bid Packages, including additive Alternate Bids, for all Bid Packages included in the proposal.

D. Bid Security shall be in the form of a Bid Bond from a surety company authorized to do business in California, Cashier's Check or a Certified Check, or Cash. The District shall be listed as obligee on the bond or payee on the check.

E. If a Bid Bond is submitted, the attorney-in-fact who executes the bond on behalf of the Surety shall attach to the Bond a certified, current copy of its Power of Attorney. The bid bond form supplied by the Surety is adequate.

Section 1.07 Bid Opening and Contract Awards

A. Bids will be opened publicly and read aloud at the time and date established in the Notice to Bidders, Section 00 11 13. Bid Summaries may be made available to Bidders not sooner than 72 hours after the Bid Date.

B. Contracts will be awarded to the lowest responsive responsible Bidder based on any combination of Base Bid and Alternates as determined by the District. This process is conducted by the District in a "blind selection" format, i.e., without knowledge of the identity of any of the Bidders before ranking of all Bidders from lowest to highest has been determined. All awards will be made in the District's best interest. No award will be made to a Bidder which is not pre-qualified if pre-qualification is required, and no award will be made to a Bidder that is not registered in accordance with Labor Code section 1725.5.

C. The District reserves the right to waive any informality or irregularity in any Proposal.

D. The District reserves the right to reject any and all proposals.

Section 1.08 Bid Protests

A. Any Bidder may file a protest against the award of the Contract to any other Bidder. The protest must be in writing, filed within five (5) calendar days after the opening of bids, and must set forth all grounds for the protest. These requirements are to be strictly construed. Untimely protests and/or grounds not set forth in the protest will not be considered. Further, the failure to comply with these protest requirements will constitute a waiver of the right to challenge and forever bar the Bidder from challenging, whether before the District or any administrative or judicial tribunal, any particular bid(s), the bidding process or any ground not set forth in the protest.

B. The District will provide a written response to any timely bid protest.

Section 1.09 Post-Bid Interviews

A. Bidders in contention for contract awards may be asked to attend a Post-Bid interview and submit Post-Bid submittals in rough draft form for review.

Section 1.10 Post-Bid Submittals

A. The District may elect to issue a Notice of Intent to Award to the successful Bidder prior to the District's execution of the Agreement for Construction.

B. Upon receipt of such a Notice of Intent to Award, the successful Bidder shall review it for completeness and accuracy, execute the Agreement for Construction, and return it to the District Representative for delivery to the District.

C. Should a Notice of Intent to Award be issued, the successful Bidder shall submit all required Post-Bid documents by the tenth (10th) day following the date of issuance of the Notice of Intent to Award. The Post-Bid documents include:

1. Payment Bond
2. Performance Bond
3. Local contact for Surety
4. Insurance Certificates
5. Name of the full-time superintendent
6. Emergency contact names and numbers
7. The name of the safety supervisor
8. Copy of Safety Manual
9. Name of the person(s) authorized to sign documents for this project

10. List of all Subcontractors and suppliers with their contractor license numbers, contractor registration number (DIR), addresses, telephone and fax numbers (2 copies required)
11. Asbestos-Containing Building Material (ACBM) Notification Statement
12. Asbestos Documentation per Exhibit C, Section 1, Book 2
13. Resume for full time superintendent
14. Name and qualifications of supervising technician as required in the Notice to Bidders Section 00 11 13
15. Prime Contractor's Worker's Compensation Affidavit, and Prime Contractor's Affidavit of Compliance form.

D. Should a Notice of Intent to Award be issued, the successful Bidder also shall submit the following:

1. Scheduling information according to Article 13 of Section 00 72 00 General Conditions
2. Schedule of Values information according to Article 12 of Section 00 72 00 General Conditions
3. Time and Materials wage sheet (submit within ten (10) days of the date of the Notice of Intent to Award
4. Matrix of all required submittals (submit within ten (10) days of the date of the Notice of Intent to Award

Section 1.11 Bonds

Refer to General Conditions Section 00 72 00, Article 3 for bond descriptions. Refer to Sections 00 61 13.13 and 00 61 13.16 for bond forms.

Section 1.12 Insurance

Refer to General Conditions Section 00 72 00, Article 3.

Section 1.13 Wages

Refer to General Conditions Section 00 72 00, Article 7.

Section 1.14 Contractor's License

Refer to General Conditions Section 00 72 00, Article 4, Section 4.01 and to Special Provisions, Section 00 73 00.

Section 1.15 Subcontractor Listing

Pursuant to the provisions of Sections 4100 to 4114, inclusive, of the California Public Contract Code, every Bidder shall in its bid set forth:

A. The name, contractor license number, and location of the place of business of each Subcontractor.

B. The portion of the Work that will be done by each Subcontractor, including for additive Alternate Bids. If the Bidder fails to specify a Subcontractor for any portion of the Work to be performed under the Contract in excess of one half (1/2) of one percent (1%) of the Bidder's total bid, including additive Alternate Bids, the Bidder agrees that it is fully qualified to perform that portion itself, and that the Bidder shall perform that portion itself. The successful Bidder shall not, without the written consent of the District, either:

1. Substitute any person as Subcontractor in place of the Subcontractor designated in the original bid.
2. Permit any subcontract to be assigned or transferred or allow it to be performed by anyone other than the original Subcontractor listed in the bid.
3. Sublet or subcontract any portion of the Work in excess of one half (1/2) of one percent (1%) of the total bid, including additive Alternate Bids, as to which its original bid did not designate a Subcontractor.

For more details refer to General Conditions Section 00 72 00, Article 6.

Any subcontractor listed in accordance with Public Contract Code section 4104 shall be registered pursuant to Labor Code section 1725.5 at the time of bidding.

Section 1.16 Construction Sets of Plans and Specifications

The District will provide to the successful Bidder at District expense complete sets of DSA approved plans, specifications and addenda as required in an amount not to exceed five sets. Additional sets may be purchased by the successful Bidder for the cost of reproduction.

ARTICLE 2. FORMS FOR BIDDING

Section 2.01 Proposal Forms

Refer to Section 00 21 16.

ARTICLE 3. PROCEDURES AND CONDITIONS FOR BIDDING

Section 3.01 Bidders' Representations & Acknowledgments

In submitting a Proposal, each Bidder certifies that:

A. The Bidder has read and understands the Bidding Documents,

B. The Proposal is made in accordance with the Bidding Documents,

C. The Bidder has visited the Project Site(s) and is familiar with the local conditions under which the Work will be performed. The Bidder also acknowledges that failure to visit the Site(s) will not relieve the Bidder of the responsibility for observing and considering those conditions which a contractor would have observed and considered during a site visit, estimating properly the difficulty and cost of successfully performing the Work or proceeding to perform the Work without additional cost to the District.

D. On the basis of the above and any further examinations, investigations and studies which the Bidder has made in connection with the Work, the Bidder represents and agrees that the Plans, Specifications and Reports are adequate to the best of the Bidder's knowledge and that the Work can be performed in strict accordance with the terms of the Contract Documents.

E. Destructive testing of school facilities is prohibited.

F. Bidder has attended the full duration of the mandatory Pre-Bid Conference.

END OF SECTION

Section 00 21 16 - PROPOSAL FORM INSTRUCTIONS

ARTICLE 1. INSTRUCTIONS

Section 1.01 Proposal Forms

Bidders are required to use the Proposal Form provided in Section 00 42 00. Additional Proposal Forms may be copied from the Project Manual.

Section 1.02 Bid Proposals

A. A responsive Proposal consists of all the following:

1. Completion of all **[Insert # of Pages]** sheets of the Proposal Form, Section 00 42 00, as required
2. Bid Security (see Section 00 21 13, Article 1.06)

B. Proposals shall be submitted in a sealed Proposal Envelope. On the face of the envelope clearly write "**Bid Proposal - Do Not Open**" and indicate the **Contractor's Name, Address, Bid Package Description and Bid Package #.**

C. All spaces provided on the Proposal Forms shall be filled in. If any space provided is not utilized by the Bidder, that space shall be filled in with the notation "NA" (Not Applicable).

D. The Proposal Forms shall be filled in by typewriter or computer or manually printed in ink.

E. Where indicated, all amounts shall be expressed in words and in figures. In case of discrepancy, the words shall govern. In the case of a discrepancy between the Total Base Bid Amount stated on the Proposal Form and the actual total, the lump sum amount, before allowances, stated on the Proposal Form and the actual mathematical total will govern.

F. Bidders shall not make unsolicited notations or statements on the Proposal Forms. Alteration of the Proposal Forms is not permitted, and will result in proposal being considered non-responsive.

G. All changes to and erasures or crossing out of the Bidder's entries shall be initialed by the signer of the Proposal.

H. Each Proposal shall include the legal name of the Bidder and a statement regarding whether the Bidder is a sole proprietor, a partnership, a corporation, or other type of legal entity. Proposals submitted by corporations shall have the state of incorporation noted, and shall have corporate seals affixed. Any Bid submitted by an agent shall have a current Power of Attorney attached, certifying the agent's power to bind the Bidder.

Section 1.03 Alternates

All requested Alternates shall be bid, or the Proposal may be considered incomplete. For further information refer to Special Provisions Section 00 73 00.

Section 1.04 Proposals for Multiple Bid Packages

Not Applicable

Section 1.05 Completion of Proposal Form

A. Submit only one Proposal Form for each Bid Package.

B. List Contractor's License number, contractor registration number (DIR) and expiration dates. Sign and date this section in the space provided.

C. Fill in the numbers and dates of all Addenda received and considered in the Proposal. Proposals must include acknowledgment of all Addenda issued prior to the Bid Date.

D. Fill in the amount of alternates as applicable.

E. Fill out and sign the Non-Collusion Declaration.

F. Fill in Subcontractors list; if there will not be any Subcontractors, check the appropriate blank and **sign** the form.

G. Fill out the DVBE list, including identifying whether the goal was met or good faith efforts documentation will be submitted

H. Type or print the signer's name and title in the spaces provided below the signature.

I. Date the form in the spaces provided.

J. Sign the bottom of each page in the space provided.

K. Affix corporate seal or stamp where indicated.

Section 1.06 Submission of Proposals

A. Proposals shall be submitted to the District in writing, at the location stated in the Notice to Bidders. Telephone, email or faxed proposals including all required bid documentation will not be accepted.

B. Proposals shall be submitted by the time and date stated in the Notice to Bidders.

C. If the DVBE participation goal is not met, submit documentation of DVBE Good Faith Efforts within 24 hours after the proposal deadline.

D. Bidders shall bear full responsibility for delivering Proposals to the location for receipt of Proposals by the time and date designated for receipt of Proposals.

E. No telephones, fax machines or copy machines will be provided by the District or the District Representative.

Section 1.07 Modification or Withdrawal of Proposals

A. A Proposal may not be withdrawn by the Bidder following the time and date designated for the receipt of Proposals, except in accordance with Sections 5100 - 5108 of the Public Contract Code.

B. Prior to the time and date designated for receipt of Proposals, Proposals may be modified or withdrawn. Modifications and withdrawals shall be in writing. Telephone, email or fax modifications will not be accepted.

C. Withdrawn Proposals may be resubmitted up to the time and date designated for receipt of Proposals.

END OF SECTION

Section 00 42 00 - PROPOSAL FORM

PROPOSAL FOR: Sacramento City Unified School District

TO: Sacramento City Unified School District
Address

COVERING BID PACKAGE: **Martin Luther King Jr. Elementary School, Schoolyard Greening, BP#67439-547**

SUBMITTED BY: _____
Name of Bidder

_____
Address

_____
Phone #/Fax #:

Licensed in accordance with the Contractors State License Board Description of Classifications. Registered with the Department of Industrial Relations. A copy of this document may be obtained from the Contractors State License Board, P.O. Box 26000, 9835 Goethe Road, Sacramento, CA 95826.

License number: _____. License type: ____. License expiration date: _____.

Public Works Contractor DIR Registration #_____ Expiration date: _____

Bidder:

On behalf of Bidder, the undersigned represents that Bidder's authorized representative attended the full duration of the Pre-Bid Conference, and that Bidder has carefully examined the Site, the proposed Contract Documents consisting of the Notice to Bidders, the Instructions for Bidders, the Proposal Form, the Agreement for Construction, the Bid Bond, the Performance Bond, the Payment Bond, the General Conditions, the Special Provisions, the General Requirements, Exhibits, the Technical Specifications, the Contract Drawings and Plans, any and all Addenda prepared by the Architect pertinent to the construction of the above-referenced Project, the Contractor's Guarantee and Bond, the Hazardous Materials Requirements, and the Preliminary Construction Schedule, and further, being familiar with all other conditions affecting the Work, Bidder hereby proposes and agrees to furnish and provide all labor, materials, supervision, transportation, tools, equipment, services and other facilities necessary and required for the expeditious completion of the Work included in the Bid Package indicated above, in strict conformity with said conditions and Contract Documents.

Bidder has reviewed the Work outlined in the Bid Package and fully understands the Scope of Work required in this Proposal, and acknowledges that its proposal includes the Work of all trades within the Bid Package covered in the Proposal and understands that each Bidder who is awarded a Contract shall be in fact a Prime Contractor to the District and agrees that its proposal, if accepted by the District, will be the basis for a contract with the District in accordance with the intent of the Contract Documents.

Bidder agrees to complete the Work required within the Bid Package within the time indicated in Special Provisions Section 00 73 00, subject to liquidated damages as specified in Special Provisions Section 00 73 00.

The undersigned has the authority to so bind Bidder to these representations and agreements.

_____ _____ ***Affix Corporate Seal Here***
Signed Date

_____
Print Name

_____
Title

Enclosed is a certified check, cashier's check, or bid bond for ten percent (10%) of the amount of the Base Bid including additive Alternates, made payable to the District to be left in escrow with the District as a guarantee that Bidder will enter into a contract and will furnish specified insurance and bonds. It is understood that refusal to do so will result in the forfeit of this guarantee as liquidated damages. If agreements and bonds are not executed, or if this proposal is not accepted within the time set for submission of bids (refer to Instructions to Bidders Section 00 21 13), or any extension thereof the check or bid bond shall be returned.

Bidder has notified the District of any discrepancies, ambiguities, inconsistencies, errors or omissions in the Bidding Documents, Contract Documents, applicable Federal, State, and local regulations or requirements, and/or of any doubt about the meaning of any of the Contract Documents, and has contacted the District before bid date to verify the issuing of any clarifying Addenda, in accordance with Instructions to Bidders, Section 00 21 13, Article I, Para D, Section 1.02.

The undersigned further acknowledges receipt of the following Addenda, which are a part of the Contract Documents:

NO.____ DATE_____ NO.____ DATE_____
NO.____ DATE_____ NO.____ DATE_____
NO.____ DATE_____ NO.____ DATE_____
NO.____ DATE_____ NO.____ DATE_____

(Include All Addenda Received)

_____
Signed

_____
Print Name

_____
Title

BID PACKAGE: Martin Luther King Jr. Elementary School, Schoolyard Greening, BP#67439-547

1. TOTAL BID: Lump Sum (in words) _____ Dollars

Lump Sum (in figures) $_____

2. Allowance for the replacement of rotted or damaged existing materials, above and beyond that which is shown, in the amount of $_____

3. Allowance for the replacement of damaged ceiling tiles, above and beyond what is shown, in the amount of $_____

4. Allowance for floor sealing due to moisture content, above and beyond what is shown, in the amount of $_____

5. Allowance for fire sprinklers, above and beyond what is shown, in the amount of $_____

TOTAL BASE BID equals sum of Items 1, 2, 3, 4 and 5 above. The undersigned proposes to provide and construct the Work required for the above listed Bid Package in accordance with said Contract Documents for the amount of:

TOTAL BASE BID (in words): _____DOLLARS

TOTAL BASE BID (in figures): $_____

_____
Signed (Signature of Bidder)

_____
Name of Firm

ADD ALTERNATE #1

Provide additional play elements in play areas as shown on plans. Costs shall include all labor and materials for installation of play elements per suppliers instructions and/or manufacturers details.

1. Music Play - Freenotes Griffin
2. Willow Dome Kit

AGREEMENT

It is understood and agreed that if written notice of the District's acceptance of this proposal is mailed, telegraphed, or delivered to the undersigned Bidder after the opening of the bid, and within the time set in Section 00 11 13 or at any time thereafter before this bid is withdrawn, the undersigned Bidder will execute and deliver to the District a contract in the form attached hereto in accordance with the bid as accepted, within ten (10) days after receipt of notification of award, and that the Work under the Contract shall be commenced by the undersigned Bidder, if awarded the Contract, on the date to be stated in a Notice to Proceed and shall be completed in the time specified in the Contract Documents. In the event the Bidder to whom an award is made fails or refuses to execute the Contract within ten (10) days from the date of receiving notification that it is the Bidder to whom the Contract is awarded, the District may declare the Bidder's bid deposit or bond forfeited as damages caused by the failure of the Bidder to enter into the Contract.

Enclosed herewith is a listing of Subcontractors and major materials suppliers in accordance with Sections 4100 to 4114 of the California Public Contract Code and the Instructions to Bidders.

The undersigned Bidder agrees that the information and representations provided herein are made under penalty of perjury.

NOTE: If Bidder is a corporation, the legal name of the corporation shall be set forth below, together with the signatures of authorized officers or agents and the document shall bear the corporate seal; if Bidder is a partnership, the true name of the firm shall be set forth below together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership; and if Bidder is an individual, his/her signature shall be placed below.

NAME OF BIDDER:

_____

Affix Corporate
Seal Here

BY: _____ _____
Signature Title

_____
Type/Print Name

_____ _____
Signature Title

_____
Type/Print Name

_____ _____
Signature Title

_____
Type/Print Name

DATE: _____

NON-COLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID

STATE OF _____)
) ss.
County of _____)

I, _____, declare that I am _____ of _____ the party making the foregoing bid, that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the Bidder has not directly or indirectly induced or solicited any other Bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any Bidder or anyone else to put in a sham bid or to refrain from bidding; that 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 of that of any other Bidder. All statements contained in the bid are true. The Bidder has not, directly or indirectly, submitted its 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 a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____[date] at _____[city], California..

_____ _____
Signature of Bidder Date

_____
Print Name

LIST OF SUBCONTRACTORS FOR _____ (BIDDER)

PROJECT: School, Project, BP#

Pursuant to the provisions of Sections 4100 to 4114 inclusive, of the California Public Contract Code, and as set forth in Instructions to Bidders, and the General Conditions, the above named Contractor hereby designates below the names, contractor license numbers, and locations of the place of business of each Subcontractor. Please check one of the boxes and sign below:

_____ We are not using any Subcontractors.

_____ All of our Subcontractors are performing at least 1/2 of 1% of the Work listed below, including for additive Alternates, if any.

WORK TO BE PERFORMED	NAME OF SUBCONTRACTOR	LICENSE NUMBER	LOCATION OF PLACE OF BUSINESS

_____
Signed

WORK TO BE PERFORMED	NAME OF SUBCONTRACTOR	LICENSE NUMBER	LOCATION OF PLACE OF BUSINESS

_____
Signed

END OF SECTION

Section 00 52 00 - FORM OF CONTRACT

ARTICLE 1. AGREEMENT FOR CONSTRUCTION

This contract is contingent upon Sacramento City Unified School District Board approval and will not be valid unless approved.

THIS AGREEMENT is made and entered into as of this ___ day of _____, 20__, by and between the Sacramento City Unified School District (hereinafter referred to as "District"), and _____, an independent contractor (hereinafter referred to as "Contractor").

District and Contractor hereby mutually agree as follows:

Section 1 - SCOPE OF WORK.
Contractor agrees to furnish all tools, equipment, apparatus, facilities, labor and materials and transportation necessary to perform and complete in a good and workmanlike manner to the satisfaction of District, all work called for and in the manner designated in, and in strict accordance with, the Contract Documents as defined in Section 2 hereof, the Work for the **[Martin Luther King Jr. Elementary School, Schoolyard Greening, BP#67439-547]**

Section 2 - CONTRACT DOCUMENTS.
The Contract Documents, sometimes also referred to as "the Contract", consist of the Notice to Bidders, the Instructions for Bidders, the Proposal Form, the Agreement for Construction, the Bid Bond, the Performance Bond, the Payment Bond, these General Conditions, the Special Provisions, the General Requirements, Exhibits, the Technical Specifications, the Contract Drawings and Plans, all duly issued Addenda, Interpretations, Change Orders, supplemental drawings, Architect's Instruction Bulletins, the Contractor's Guarantee and Bond, the Hazardous Materials Requirements, the Preliminary Construction Schedule, and the Contract Schedule.

Section 3 - DEFINITIONS.
Unless otherwise specifically provided herein, all words and phrases defined in the General Conditions shall have the same meaning and intent in this Agreement.

Section 4 - CONTRACT AMOUNT.
District agrees to pay and Contractor agrees to accept, for the full and complete performance of this Agreement in full payment for the Work performed the sum of _____ DOLLARS $_____, subject to adjustment as provided in the Contract Documents.

Section 5 - MONTHLY PROGRESS PAYMENTS.
Monthly progress payments shall be made in accordance with Article 12 of the General Conditions of the Contract Documents.

Section 6 - FINAL PAYMENT.
Final payment shall be made in accordance with Article 21 of the General Conditions.

Section 7 - RETENTION OF SUMS CHARGED AGAINST CONTRACTOR.
When, under this provisions of the Contract Documents, District shall charge any sum of money against Contractor, District shall deduct and retain the amount of such charge from the amount of the next succeeding progress payment, or from any other monies due or that may become due to Contractor from District. If, on completion or termination of the Contract, sums due Contractor are insufficient to pay District's charges against Contractor, District shall have the right to recover the balance from Contractor or its sureties.

Section 8 - TIME OF COMPLETION.
The Work shall be commenced on the date specified in the District's "Notice to Proceed," and shall be fully completed as described in the Contract Documents, including, without limitation, the General Conditions, **[[within _____ calendar days of the date of the Notice to Proceed] or [by insert specific date]]** together with such additional time as may be provided by any change order issued pursuant to the Contract Documents.

Time is of the essence in this Agreement and the Contract Documents. Failure of Contractor to complete the Work by the completion date and in the manner provided for by the Contract Documents shall subject Contractor to liquidated damages as hereinafter provided in this Agreement and the Contract Documents.

Section 9 - NO WAIVER OF REMEDIES.
Neither the inspection by District or its agents, nor any order or certificate for payment of money, nor any payment for, nor acceptance of the whole or any part of the Work by District, nor any extensions of time, nor any position taken by District or its agents shall operate as a waiver of any provision of this Agreement or the Contract Documents or of any power herein reserved to District or any right to damages herein provided, nor shall any waiver of any breach of this Agreement or of the Contract Documents be held to be a waiver of any other or subsequent breach. All remedies provided in this Agreement and in the Contract Documents shall be taken and construed as cumulative; that is, in addition to each and every other remedy provided in this Agreement and/or the Contract Documents, and District shall have any and all equitable and legal remedies, which it would in any case have.

Section 10 - LIQUIDATED DAMAGES.
Liquidated damages may be assessed against Contractor in accordance with Article 14 of the General Conditions and Section 00 73 00, Special Provisions, in the amount of $**$2,000.00** per calendar day if Contractor fails to complete the Work within the Contract Time. The provision for liquidated damages in the Contract Documents shall not act as a limitation upon District if Contractor abandons the Work. In such event, Contractor shall be liable to District for all losses incurred.

Section 11 - PERFORMANCE AND PAYMENT BONDS.
Contractor, before beginning the Work, shall file a Performance Bond and a Payment Bond with District, each made payable to District. These bonds shall be issued by a surety company authorized to do business in the State of California and shall be maintained during the entire life of the Contract at the expense of Contractor. Each bond shall be in the amount of one hundred percent (100%) of the Contract. The Performance Bond shall guarantee the faithful performance of the Contract. The Payment Bond shall be in accordance with the requirements of Part 6, Title 3, Chapter 5 of the California Civil Code, commencing with section 9550. Any alteration or alterations made in any provision of the Contract shall not operate to release any surety from any liability on any bond required hereunder and the consent to make such alterations is hereby given, and any surety on said bonds hereby waives the provisions of Section 2819 of the Civil Code.

Section 12 - UNFAIR COMPETITION.
The following provision is included in this Agreement pursuant to California Public Contract Code section 7103.5.

"In entering into a public works contract or subcontract to supply goods, services, or materials pursuant to a public works contract, the contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700 of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the contractor, without further acknowledgment by the parties."

Section 13 - ASSIGNMENT.
Neither this Agreement nor any rights herein of Contractor shall be assigned without the written consent of District first obtained.

Section 14 - NO THIRD PARTY BENEFICIARIES.
This Agreement is entered into solely between District and Contractor. There are no third party beneficiaries, intended, unintended, or otherwise to this Agreement.

Section 15 - AGREEMENT BINDING.
This Agreement shall bind and insure to the heirs, devisees, assignees and successors in interest of Contractor and to the successors in interest of District in the same manner as if such parties had been expressly named herein.

Section 16 - AGREEMENT CONTROLS.
In the event of a conflict between the terms and conditions set forth in this Agreement and the terms and conditions set forth in the other Contract Documents, the terms and conditions set forth in this Agreement shall prevail.

Section 17 - FINGERPRINTING.
Education Code sections 45125.1 and 45125.2 apply to this Agreement. Contractor shall, prior to commencement of Work, comply with either of the methods of ensuring safety set forth in Education Code section 45125.2(a)(1) (installation of a physical barrier) or 45125.2(a)(2) (continual supervision by an employee of Contractor who has not been convicted of a serious or violent felony). If Contractor elects to provide continual supervision pursuant to Education Code section 45125.2(a)(2), Contractor shall require the person(s) who will provide that continual supervision to be fingerprinted by the Department of Justice ("DOJ"). Upon verification from DOJ that those persons fingerprinted have no record of a serious or violent felony, Contractor will so certify by signing and submitting to District, through the District Representative, the certification form attached as Exhibit A and incorporated by reference. In addition, Contractor shall submit the names of those persons who have received clearance on a form as indicated in Exhibit B. Any person whose name is not on the cleared list may not have such access. In that case, Contractor must make arrangements with District for appropriate access. No person with a violent or serious felony as reported by DOJ may have access to the school campuses.

Failure to comply with this Section 17 of this Agreement at all times, or permitting unsupervised access by an employee whose name has not been cleared by DOJ as certified by Contractor, shall constitute grounds for termination of this Agreement.

Section 18 - GOVERNING LAW.
This Agreement will be governed by and construed in accordance with the laws of the State of California.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first above written.

Contractors are required by law to be licensed and regulated by the Contractor's State License Board, which has jurisdiction to investigate complaints against contractors if a complaint is filed within three years of the date of the alleged violation. Any questions concerning a contractor may be referred to the Registrar, Contractors' State License Board, P.O. Box 26000, Sacramento, California 95826.

District: Sacramento City Unified School District

By: _____
[Insert Name]

Its: Director of Facilities [Confirm Title]

Contract Amount: _____

By: _____
[Insert Name]

Its: [Insert Title]

(Signatures continued on following page)

Board Approval Date:_____

(Corporate Seal)

Contractor:_____

By: _____

Its: _____

Business Address:_____

_____

License Number:_____

Contractor DIR Registration #:_____

Federal I.D. #:_____

CORPORATE CERTIFICATE

I, _____, certify that I am the Secretary of the corporation named as Contractor in the foregoing contract; that _____, who signed said contract on behalf of said corporation is authorized to fully bind the corporation to this Agreement; that said contract was duly signed for and on behalf of said corporation by authority of its governing body and is within the scope of its corporate powers.

(Corporate Seal)

_____
Secretary

EXHIBIT A TO FORM OF CONTRACT

CERTIFICATION

I, _____, on behalf of _____, certify that, pursuant to Education Code Section 45125.1 and 45125.2 and Section 17 of this Agreement, this business entity has conducted the required criminal background check(s) of all persons who will be providing continual supervision and monitoring of all persons who will be providing services to the Sacramento City Unified School District on behalf of this business entity, and that none of those persons have been reported by the Department of Justice as having been convicted of a serious or violent felony as specified in Penal Code sections 667.5(c) and/or 1192.7(c). I understand that this Certification is not to be signed and submitted until I have received clearance from DOJ regarding those persons named.

As further required by Education Code 45125.1, submitted herewith as Exhibit B is a list of names of the employees or agents of _____ who will be providing continual supervision and monitoring of all persons who will be providing services to the Sacramento City Unified School District on behalf of this business entity and who are required to be fingerprinted as provided in the Agreement. I agree to keep this list current and to notify Sacramento City Unified School District of any addition/deletions as they occur.

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

Executed this __ day of _____, 20___, in _____ County, California.

(Seal of business)

By: _____
[Name of Contractor's Authorized Representative]
(Please print)

_____
(Title)

_____
(Signature)

EXHIBIT B TO FORM OF CONTRACT

LIST OF EMPLOYEES WHO ARE AUTHORIZED TO PROVIDE SUPERVISION AND MONITORING SERVICES ON SCHOOL CAMPUSES

Name:	School Site (if known)

Section 00 61 13.13 – PAYMENT BOND FORM

Bond No._____

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS:

THAT WHEREAS, Sacramento City Unified School District (the ”District”) has awarded to

_____as Principal a contract dated the _____day of _____, 2___, for the furnishing if all labor, materials, equipment, transportation and services for the construction of **[Bid Package ___ on the _____]** Project located in Sacramento County, California (hereinafter referred to as the “Contract”);

AND WHEREAS, Principal is required to furnish a bond in connection with the Contract to secure the payment of claims of laborers, mechanics, material suppliers, and other persons as provided by law;

NOW THEREFORE, we the undersigned Principal and

_____
as Surety, are held and firmly bound unto the District in the sum of _____ DOLLARS $_____ for which payment well and truly to be made we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

1. THE CONDITION OF THIS OBLIGATION IS SUCH, that if Principal, or its heirs, executors, administrators, successors, or assigns approved by the District or its Subcontractors shall fail to pay any of the persons named in State of California Civil Code Section 9100, or amounts due under the State of California Unemployment Insurance Code with respect to work or labor performed under the Contract, or for any amounts required to be deducted, withheld, and paid over to the State of California Employment Development Department from the wages of employees of Principal and subcontractors pursuant to Section 13020 of the State of California Unemployment Insurance Code with respect to such work and labor, that Surety will pay for the same in an amount not exceeding the sum specified in this bond, otherwise the above obligation shall become and be null and void.

2. This Bond shall inure to the benefit of any and all persons, companies and corporations entitled to file claims under California law, including but not limited to the persons named in State of California Civil Code Section 9100 so as to give a right of action to such persons or their assigns in any suit brought upon this bond.

3. Surety, for value received, hereby expressly agrees that no extension of time, change, modification, alteration, or addition to the undertakings, covenants, terms, conditions, and agreements of the Contract, or to the work to be performed thereunder, shall in any way affect the obligation of this bond; and it does hereby waive notice of any such extension of time, change, modification, alteration, or addition to the undertakings, covenants, terms, conditions, and agreements of the Contract, or to the work to be performed thereunder. Surety further waives the provisions of Section 2845 of the State of California Civil Code.

4. Amounts owed by the District to Principal under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under the Performance Bond. By Principal furnishing and the District accepting this Payment Bond, they agree that all funds earned by Principal in the performance of the Contract are dedicated to satisfy obligations of Principal and Surety under this Bond, subject to the District’s priority to use the funds for the completion of the Work or the satisfaction of the District’s claims, including liquidated damages, under the Contract.

5. Surety’s obligations hereunder are independent of the obligations of any other surety for the payment of claims of laborers, mechanics, material suppliers, and other persons in connection with the Contract; and suit

may be brought against Surety and such other sureties, jointly and severally, or against any one or more of them, or against less than all of them without impairing the District rights against the other.

6. In the event suit is brought upon this bond, the parties not prevailing in such suit shall pay reasonable attorneys' fees and costs incurred by the prevailing parties in such suit.

7. Correspondence or claims relating to this bond shall be sent to Surety at the address set forth below.

IN WITNESS WHEREOF, we have hereunto set our hands this _____day of _____, 20___.

Principal: _____
(Name of Firm)

By: _____

Title: _____

Surety: _____
(Name of Firm)

By: _____

Title: _____

Address for Notices:

_____
_____
_____

Phone #_____

Fax # _____

Note: Notary Acknowledgement for Surety and Surety's Power of Attorney must be attached

Address for Owner Notices:

Sacramento City Unified School District
Attn: _____[insert name and title]

Insert Address

Section 00 61 13.16 - PERFORMANCE BOND FORM

Bond No._____

KNOW ALL PERSONS BY THESE PRESENTS:

WHEREAS, Sacramento City Unified School District hereinafter referred to as "District" and _____ (hereinafter referred to as "Contractor"), have entered into a written contract for furnishing of all labor, materials, equipment, transportation and services for the construction of _____ Project located in Sacramento County, California (hereinafter referred to as the "Construction Contract"); and

WHEREAS, Contractor is required by the terms of the Construction Contract to furnish a bond for the faithful performance of all terms and conditions of the Construction Contract;

NOW, THEREFORE, Contractor, as principal, and _____ (hereinafter referred to as "Surety"), as Surety, are held and firmly bound unto District and Claimants, as defined herein, in the penal sum of _____DOLLARS $_____, lawful money of the United States, for the payment of which sum well and truly to be made as provided in this Performance Bond.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to District for the performance of the Construction Contract, which is incorporated herein by reference.

2. If Contractor timely performs each and every obligation under the Construction Contract, including all Guarantee and/or warranty obligations, Surety and Contractor shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 3.1.

3. Surety's obligation under this Performance Bond shall arise after:

   3.1 District has declared a Contractor Default and has notified Contractor and Surety at its address described in Paragraph 10 below that District has declared a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than seven days after receipt of such notice to discuss methods of performing all remaining obligations of Contractor pursuant to the Construction Contract; and

   3.2 District has agreed to pay any remaining Balance of the Agreement Price, as calculated under the terms of the Construction Contract, to Surety in accordance with the terms of the Construction Contract or to a contractor selected to perform the Construction Contract in accordance with the terms of the Construction Contract with District.

4. When District has satisfied the conditions of Paragraph 3, Surety shall promptly and at Surety's expense take one of the following actions:

   4.1 Arrange for Contractor, with consent of District, to perform and complete the Construction Contract; or

   4.2 Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; or

4.3 Obtain bids or negotiated proposals from qualified contractors acceptable to District for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by District and the contractor selected with District's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to District the amount of damages as described in Paragraph 6 in excess of the Balance of the Agreement Price, as calculated under the terms of the Construction Contract, incurred by District resulting from Contractor's Default; or

4.4 Waive its right to perform and complete, arrange for completion, or obtain a new Contractor and with reasonable promptness under the circumstances:

.1 After investigation, determine the amount for which it may be liable to District and, as soon as practicable after the amount is determined, tender payment thereof to District; or

.2 Deny liability in whole or in part and notify District citing specific reasons therefore.

5. If Surety does not proceed as provided in Paragraph 4 within twenty days from receipt of the notice described in paragraph 3.1 (whether or not a conference has been held pursuant to paragraph 3.1), or such longer period upon which District and Surety may agree in writing, Surety shall be deemed to be in default on this Bond. If Surety proceeds as provided in Subparagraph 4.4, and District refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice District shall be entitled to enforce any remedy available to District.

6. After District has declared a Contractor Default, and if Surety elects to act under Subparagraph 4.1, 4.2, or 4.3 above, then the responsibilities of Surety to District shall not be greater than those of Contractor under the Construction Contract, and the responsibilities of District to Surety shall not be greater than those of the District under the Construction Contract. To the limit of the amount of this Performance Bond, but subject to commitment by District of any remaining Balance of the Agreement Price to mitigation of costs and damages on the Construction Contract, Surety is obligated without duplication for:

6.1 The responsibilities of Contractor for correction of defective Work, materials and equipment and completion of the Construction Contract, including all Guarantee and warranty obligations;

6.2 Additional legal, design professional, construction management and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of Surety under Paragraph 4; and

6.3 Liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of Contractor.

7. Surety shall not be liable to District or others for obligations of Contractor that are unrelated to the Construction Contract, and the Balance of the Agreement Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than District or its heirs, executors, administrators or successors.

8. Surety, for value received, hereby expressly agrees that no extension of time, change, modification, alteration, or addition to the undertakings, covenants, terms, conditions, and agreements of the Contract, or to the work to be performed thereunder, shall in any way affect the obligation of this bond; and it does hereby waive notice of any such extension of time, change, modification, alteration, or addition to the undertakings, covenants, terms, conditions, and agreements of the Contract, or to the work to be performed thereunder. Surety further waives the provisions of Section 2845 of the State of California Civil Code.

9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction. The prevailing party in any such action shall be entitled to recover its attorneys' fees, to be taxed as an item of costs.

10. Notice to Surety, District or Contractor shall be mailed or delivered to the address, or sent via telecopier to the facsimile number, shown on the signature page.

11. DEFINITIONS

11.1 Balance of the Agreement Price: The total amount payable by District to Contractor under the Construction Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by District in settlement of insurance or other claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Construction Contract.

11.2 Construction Contract: The agreement between the District and the Contractor identified on the first page of this bond, including all Contract Documents and changes thereto.

11.3 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract.

CONTRACTOR, as Principal	SURETY
By: _____	By: _____
Its: _____	Its: _____
Address: _____	Address: _____
Phone #: _____	Phone #: _____
Fax #: _____	Fax #: _____
	Note: Notary Acknowledgement for Surety and Surety's Power of Attorney must be attached

Address for Owner Notices:

Sacramento City Unified School District
Attn: _____[insert name and title]

Insert Address

Section 00 65 36 - GUARANTEE FORM

{Print on Contractor/Subcontractor Letterhead}

ARTICLE 1. GUARANTEE FORM

_____ [Contractor's Name] hereby unconditionally guarantees that the Work performed at **[Martin Luther King Elementary School, Schoolyard Greening, BP#67439-547]** has been done in accordance with the requirements of the Contract therefore and further guarantees the Work of the Contract to be and remain free of defects in workmanship and materials for a period of two (2) years from and after the recordation of the Notice of Completion of the Project and completion of all Contract obligations by the Contractor, including formal acceptance of the entire Project by the District, unless a longer guarantee period is called for by the Contract Documents, in which case the terms of the longer guarantee shall govern. The Contractor specifically waives any right to claim or rely on the statutory definition of completion set forth in Civil Code section 9200. The Contractor specifically acknowledges and agrees that completion shall mean the Contractor's complete performance of all Work required by the Contract Documents, amendments, change orders, construction change directives and punch lists, and the District's formal acceptance of the entire Project, without regard to prior occupancy, substantial completion doctrine, beneficial occupancy, or otherwise. The Contractor hereby agrees to repair or replace any and all Work, together with any adjacent Work which may have been damaged or displaced in so doing, that may prove to be not in accordance with the requirements of the Contract or that may be defective in its workmanship or materials within the guarantee period specified, without any expense whatsoever to the District, ordinary wear and tear and unusual abuse and neglect only excepted. The Contractor has provided contract bonds, which will remain in full force and effect during the guarantee period.

The Contractor further agrees that within ten (10) calendar days after being notified in writing by the District of any Work not in accordance with the requirements of the contract or any defects in the Work, it will commence and prosecute with due diligence all Work necessary to fulfill the terms of this guarantee, and to complete the Work within a period of time stipulated in writing. In the event it fails to so comply, Contractor does hereby authorize the District to proceed to have such Work done at the Contractor's expense and it will pay the cost thereof upon demand. The District shall be entitled to all costs, including reasonable attorneys' fees, necessarily incurred upon the Contractor's refusal to pay the above costs.

The guarantee period for corrected defective work shall continue for a duration equivalent to the original guarantee period.

Notwithstanding the foregoing paragraph, in the event of an emergency constituting an immediate hazard to the health or safety of the employees of the District, or its property or licensees, the District may undertake at the Contractor's expense without prior notice, all Work necessary to correct such hazardous condition when it was caused by the Work of the Contractor not being in accordance with the requirements of this contract, or being defective, and to charge the same to the Contractor as specified in the preceding paragraph.

The guarantee set forth herein is not intended by the parties, nor shall it be construed, as in any way limiting or reducing the District's rights to enforce all terms of the Contract referenced hereinabove or the time for enforcement thereof. This guarantee is provided in addition to, and not in lieu of, the District's rights on such contract.

Spec Sections: _____

_____
CONTRACTOR'S SIGNATURE

_____
PRINT NAME

Section 00 72 00 - GENERAL CONDITIONS

Table of Contents

Article	Subject	Pages
1	Definitions and Principles of Interpretation	2-7
2	Contract Documents	8-9
3	Bonds and Bonding; Indemnification and Insurance	10-15
4	Permits, Licenses, Ordinances, and Regulations	16
5	Interpretation of Drawings and Specifications	17-18
6	Subcontractor Listing and Substitution	19-20
7	State Requirements Regarding Wages, Hours, and Equal Opportunity	21-24
8	Supervision and Labor	25-26
9	Inspection and Testing	27-29
10	Protection of Workers, Public, and Property	30-32
11	Submittals	33-39
12	Progress Payments	40-42
13	Time of Work	43-46
14	Delays and Extensions of Time	47-49
15	Changes to the Work	50-53
16	District’s Right to Carry Out the Work	54
17	Rejection and Replacement of Work and Materials	55
18	District's Right to Terminate the Contract	56-58
19	Preservation and Cleaning	59
20	Completion, Inspection and Occupancy by District	60-61
21	Contract Closeout	62-63
22	Guarantees	64
23	Claim Requirements	65-68
24	Additional Provisions	69

ARTICLE 1. DEFINITIONS AND PRINCIPLES OF INTERPRETATION

Section 1.01. Whenever the following terms, titles, or phrases are used in the Contract Documents, the intent and meaning thereof shall be as defined in this article.

Section 1.02. Addendum/Addenda.
"Addendum" or "Addenda" are written documents furnished by the District before award of the Contract, interpreting or modifying plans and specifications or answering questions of intended bidders, and shall be incorporated in and are a part of the Contract Documents.

Section 1.03. Architect.
The "Architect" is the architectural firm engaged as an agent by the District to perform the services set forth in the Contract Documents.

The Architect is designated by the District as the District's agent to perform all functions delegated to the Architect by the Contract Documents.

Section 1.04. Architect's Instruction Bulletin.
"Architect's Instruction Bulletins" are supplemental drawings or instructions which may be issued as necessary from time to time to make clear or define in greater detail the intent of the Contract Drawings and Specifications. There may be a change in Contract Sum or Contract Time involved with the work shown in the Bulletin.

Section 1.05. Bid.
"Bid" shall mean the offer of the bidder to do the work, when submitted on the prescribed bid form, properly executed and bonded, at the designated time and location.

Section 1.06. Board of Education.
"Board of Education" shall mean the duly elected officials constituting the Board of Education of the Sacramento City Unified School District.

Section 1.07. Change Order.
"Change Order" shall mean a written order to the Contractor, issued after execution of the Contract, signed by the District and the Contractor, authorizing a change in the Work and/or an adjustment in the Contract Sum and/or the Contract Time. Change Orders may incorporate CCDs, some of which require DSA approval prior to being incorporated into the Change Order.

Section 1.08. Closeout Documents.
Documents as required to meet the requirements of final completion as defined in Article 21.

Section 1.09. Construction Change Directive .
"Construction Change Directive" or "Directive" shall mean a written order to the Contractor, issued after execution of the Contract, signed by the District or the District Representative directing a change in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum or Contract Time, or both, and which shall be used in the absence of total agreement with the Contractor on the terms of a Change Order or when time does not permit processing of a Change Order prior to implementation of the change.

Section 1.10. Contract Change Document
"Contract Change Document" or "CCD" shall mean the following documents, which may be required to be submitted to DSA for approval prior to being implemented and incorporated into a Change Order: Architect's Instruction Bulletins, Construction Change Directives, Interpretations, RFI's or Substitutions.

Section 1.11. Contract Documents.
The "Contract Documents" shall include the Notice to Bidders, the Instructions for Bidders, the Proposal Form, the Agreement for Construction, the Bid Bond, the Performance Bond, the Payment Bond, these General Conditions, the Special Provisions, the General Requirements, Exhibits, the Technical Specifications, the Contract Drawings and Plans, all duly issued Addenda, Interpretations, Change Orders, Directives, supplemental drawings, Architect's

Instruction Bulletins, the Contractor's Guarantee and Bond, the Hazardous Materials Requirements, Preliminary Construction Schedule, and the Contract Schedule.

Section 1.12. Contract Drawings or Plans.
The "Contract Drawings" (sometimes referred to as "Drawings" or "Plans") are 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. This information may be developed and stored in a 3D or 4D model of the Project. Once approved, all such drawings are incorporated into and become a part of the Contract Documents.

Section 1.13. Contract Schedule.
The "Contract Schedule" is the schedule produced by the Contractor in response to the requirements of the Contract Documents. See Section 13.02 for specific requirements.

Section 1.14. Contract Sum.
"Contract Sum" is the total amount payable by the District to the Contractor for the performance of the Work under the Contract Documents. The Contract Sum is the amount stated in the Agreement for Construction, including authorized adjustments thereto.

Section 1.15. Contract Time.
"Contract Time" shall mean the period specified for completion of the Work, as set forth in the Agreement for Construction and adjusted by any Change Order issued pursuant to the Contract Documents.

Section 1.16. Contractor.
"The Contractor" shall mean the person or persons, partnership, or corporation, who have entered into the Agreement for Construction of the Work with the District or its legal representatives, or successors, assigns, executors, or heirs. The Contractor is required by law to be licensed and will perform work or render services as a prime contractor in or about the construction of the Work.

Section 1.17. Date of Commencement.
"Date of Commencement" is the date established in the Notice to Proceed. If there is no Notice to Proceed, it shall be the date of the executed Agreement for Construction or such other date as may be established therein.

Section 1.18. Date of Completion.
The "Date of Completion" for the purpose of determining when the Work is complete is the date certified by the District Representative when construction of the Work is 100% complete, including acceptance by the Architect of all punch list corrections. See Article 21 for the meaning of "completion" for the purpose of determining acceptance of the Work and when final payment is due.

Section 1.19. Day.
Unless otherwise expressly defined, a "day" shall mean a calendar day of 24 hours, including each and every day of the year.

Section 1.20. District.
"District" shall mean the Sacramento City School District, a California school district. The District is sometimes designated "Owner" in the Contract Documents.

Section 1.21. District Representative.
"District Representative" shall mean the District's designated agent engaged to perform all functions delegated to the District Representative by the Contract Documents. The District Representative may or may not be a construction manager. The District Representative will be the Contractor's primary contact during construction of the Project.

Section 1.22. Division of the State Architect.
"Division of the State Architect" or "DSA" is the California State agency responsible for checking contract documents for compliance with Title 24, California Code of Regulations, and monitoring compliance on the construction site. The Division of the State Architect also approves inspectors on all public school projects.

Section 1.23. Equal (as in "or equal").
"Equal" shall mean a system, process, product or material which is similar in all respects to that shown or specified but produced by a manufacturer not listed in the specification. See also: Substitution.

Section 1.24. First Line Supervision.
"First Line Supervision" shall mean a working foreman or lead craft worker other than the project superintendent.

Section 1.25. Interpretations.
"Interpretations" are all clarifications, additional instructions, and explanations issued by the Architect pursuant to Article 5 hereof, after award of the Contract.

Section 1.26. Materials and Equipment.
"Materials" is a generic term which shall include all building materials, articles, supplies, and equipment delivered to the project for incorporation in the Work. "Materials" includes everything incorporated into the Work except labor, unless otherwise noted.

"Equipment" shall mean all pre-manufactured or partially preassembled products or components, assembled or partially assembled before delivery to the Site.

Section 1.27. Milestone Completion Date.
The "Milestone Completion Date" is the date certified as when construction of the Work of any phase is 100% complete, including acceptance by the Architect of all punch list corrections.

Section 1.28. Notice of Intent to Award.
The "Notice of Intent to Award" is issued following District approval of bids. It authorizes the Contractor to obtain required bonds and insurance and to procure all materials and equipment necessary to fulfill its contract within the time shown in the schedule.

Section 1.29. Notice to Proceed.
"Notice to Proceed" is the notice given to the Contractor following execution of the Agreement for Construction and receipt of all required preconstruction submittals as itemized in the Notice of Intent to Award. The Notice to Proceed establishes the start of the Work and authorizes the Contractor to begin construction.

Section 1.30. Office of Public School Construction (OPSC).
"Office of Public School Construction" or "OPSC" is the California State agency responsible for apportionment, disbursement and monitoring of state-provided school district capital improvement funds.

Section 1.31. Preliminary Construction Schedule.
"Preliminary Construction Schedule" is a schedule that may be included in the bid documents and establishes the milestone dates for completion of each major trade activity as well as the phasing of work by building and the overall duration of the Project.

Section 1.32. Product Data.
"Product Data" shall mean illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate a material, product or system for some portion of the Work.

Section 1.33. Project.
"Project" shall mean the total design and construction of the work of improvement described in the Contract Documents, of which the Work may be the whole or a part and which may include construction by District or by separate contractors.

Section 1.34. Project Inspector.
The "Project Inspector" shall mean the person or persons employed or engaged as (an) independent contractor(s) by the District to inspect the performance of the Work by the Contractor for compliance with the Contract Documents. The Project Inspector is hereby designated as an agent of the District for such purpose and no other. The Project Inspector is supervised by, and reports to, the Architect. The authority of the Project Inspector to

monitor the work shall be strictly limited to that authority specified herein and in Title 24, California Code of Regulations, and no additional authority has been granted nor shall be inferred.

Section 1.35. Proposed Change Order/Work Order.
A "Proposed Change Order/Work Order" or "PCO" is the name given to a document issued by the Contractor proposing a change to the Work and stating a proposed basis for adjustment, if any, in the Contract Sum or Contract Time, or both. A PCO shall be used by the Contractor to respond to a Request for Proposal, a Request for Information or an Architect's Instructional Bulletin. A PCO is not effective to authorize the proposed change to the Work, to the Contract Sum or to the Contract Time unless it is accepted in writing by the District.

Section 1.36. Provide.
"Provide" shall mean to furnish, install, and connect complete and ready for use.

Section 1.37. Reference to Codes.
Unless otherwise noted, all references to statutes are to the laws of the State of California and/or of the United States as codified in the various specified codes.

Section 1.38. Request for Information.
"Request for Information" or "RFI" is the name given to a document issued by the Contractor seeking clarification and/or additional information regarding an aspect of the Work. The response to the RFI does not constitute authorization or direction to proceed with any changed or additional work. Changed or additional work must be separately authorized by the District.

1. Should the Contractor require clarification or additional information of the Contract Documents, and after the Contractor has consulted with the Project Inspector, the Contractor will direct the request to the District Representative on a Request for Information (RFI) form. (See appendix.)

2. Each RFI will be submitted to the District Representative un-numbered. The District Representative will number each RFI sequentially and will maintain an RFI log. The Contractor shall describe on the RFI the problem or clarification being requested. The description provided should be complete and adequate to permit a written response without additional communications with the Contractor. The Contractor shall attach any related information or correspondence that may have been received from Subcontractors or vendors on the subject. In instances where the Contractor believes there may be a conflict between elements of the plans and specifications, the Contractor should identify the conflict and indicate the manner in which it interprets the Contract Documents.

3. The District Representative will review the request and take one or more of the following steps:
   a. Return the request to the Contractor for additional information.
   b. Forward the request to the A/E for response, copying the Project Inspector.
   c. Provide response and return to the Contractor with copies to the A/E and Project Inspector.

4. The A/E or other appropriate party receiving the RFI, will attempt to provide a response to the District Representative within seven (7) calendar days of receipt. The District Representative will in turn review the response and forward it to the Contractor. Should the response to an RFI be required by a specific critical date the Contractor shall indicate that date on the RFI.

5. If the A/E's review indicates a change or revision is necessary to the Contract Documents, the A/E will prepare the appropriate drawings and/or specifications required to define the change or revision and obtain DSA approval, if necessary. These documents will be transmitted to the District Representative for review and incorporation into the Contract Documents. The District Representative will transmit the revised documents to the Contractor.

6. If the Contractor believes the clarification or direction provided by the response to the RFI will impact the cost or schedule of the Project, the Contractor shall provide prompt notification to the District Representative, according to the General Conditions. After consultation with the A/E, the District Representative may prepare a Request for Proposal, PCO/Work Order and/or Change Order (see appendix) that shall be processed as outlined in the Change Order Procedure section of the Manual.

Section 1.39. Request for Proposal.
A "Request for Proposal" or "RFP" is the name given to a document issued by the District Representative requesting pricing information and/or an adjustment in Contract Time for a described scope of work. An RFP is not a Change Order, a Directive or a direction to proceed with the scope of work described in the RFP. The Contractor's response to the RFP shall be in the form of a Proposed Change Order.

Section 1.40. Samples.
"Samples" shall mean physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

Section 1.41. Shop Drawings.
"Shop Drawings" shall mean drawings, diagrams, schedules and other data specifically prepared by the Contractor or any subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

Section 1.42. Site.
"Site" is the area within which the Project is to be constructed.

Section 1.43. Special Inspector.
The "Special Inspector" shall mean the person or persons employed or engaged as (an) independent contractor(s) by the District to inspect the performance of specific aspects of the work as required by Title 24, California Code of Regulations.

Section 1.44. Special Provisions.
The "Special Provisions" are specific clauses setting forth conditions or requirements peculiar to the Work, and supplementary to the General Conditions and Technical Specifications.

Section 1.45. Specifications.
"Specifications" include the special provisions, general conditions, general requirements, and technical specifications applicable to the Work, all duly executed and issued addenda and interpretations, and all modifications approved by the District pursuant to a Change Order.

Section 1.46. Subcontractor.
"Subcontractor" shall mean each person or firm who is required by law to be and who is licensed to and will perform work, labor, or render services to the Contractor in or about the construction of the Work, or who, under subcontract to the Contractor, fabricates and installs a portion of the work or improvement.

"Subcontractor" shall include all persons or firms within the authority of the Subletting and Subcontracting Fair Practices Act, Chapter 2 of Division 5, Title I of the Public Contract Code, commencing with Section 4100.

Section 1.47. Submittal.
"Submittal" shall mean all product data, shop drawings, manufacturers' instructions, samples, Equals, substitution requests and all other submissions that the Contractor is required to provide to the District and/or the Architect.

Section 1.48. Substitution.
"Substitution" shall mean a system, process, product or material similar in form or function and equal in quality and performance to that shown or specified, but differing in some essential element, e.g., chemical composition, mechanism of action, surface finish, dimensions, durability, electrical or mechanical or plumbing requirements. See also: Equal.

Section 1.49. Supply.
"Supply" shall mean to furnish only, complete and ready for installation, including shipping, delivery, protection, and any assembly required prior to installation.

Section 1.50. Work.

The "Work" shall mean that scope of work defined in Section 00 73 00, Article 1 of these Specifications and includes all labor, materials, equipment and services provided or to be provided by the Contractor to fulfill its obligations. The Work may constitute the whole or a part of the Project.

ARTICLE 2. CONTRACT DOCUMENTS

Section 2.01. The Contract.
The Contract Documents form the Contract for Construction. This Contract represents the entire and integrated agreement between the District and the Contractor and supersedes all prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Change Order as defined in Section 1.07. Nothing contained in the Contract Documents shall create any contractual relationship between the District, the District Representative or the Architect and any Subcontractor or sub-subcontractor, or between the District Representative or the Architect and the Contractor.

Section 2.02. General Intent of Contract Documents.
It is the overriding intent of the Contract Documents that the work performed shall result in a complete and operable project in satisfactory condition for occupancy, with all mechanical equipment in functional operating condition and fit for the use for which it is intended, and which complies in all respects with the Contract Documents. No extra compensation will be allowed for anything omitted but fairly implied to be included in the Contract Documents. The prices paid for the various items in the bid shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and doing all items necessary to complete the Work as provided by the Contract Documents.

Section 2.03. Labor and Materials.
Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, light, heat, utilities, transportation and other facilities and services necessary for the execution and completion of the Work in accordance with the Contract Documents and any applicable code or statute, whether or not specifically described herein, as long as same is reasonably inferable there from as being necessary to produce the intended results, whether temporary or permanent, and whether or not incorporated or to be incorporated in the Work.

Section 2.04. Complementary Feature of Various Parts of Contract Documents.
The Contract Documents, including the Specifications and Plans and Drawings, are complementary and what is called for by any one shall be as binding as if called for by all. In case of conflict, large scale (detail) Drawings shall govern over small-scale Drawings, the Specifications shall govern over the Contract Drawings except as noted below, special provisions shall govern over both the Contract Drawings and the general conditions, and subsequent addenda, Interpretations, or approved change orders shall govern over the original documents, unless a different order of precedence is noted elsewhere in conjunction with a specific portion of the documents.

In case of conflict between the Drawings and Specifications, the Drawings shall govern in matters of quantity and size, the Specifications in matters of quality. In case of conflict within the Drawings involving quantities or within the Specifications involving quality, the greater quantity and the higher quality shall be provided.

Where on any Drawing a portion of the Work is drawn out and the remainder is indicated in outline, the drawn-out parts shall apply to all other like portions of the Work. Where ornament or other detail is indicated as starting, such detail shall be continued throughout the courses or parts in which it occurs and shall also apply to other similar parts in the Work, unless otherwise indicated.

Scale drawings, full-size details, and specifications are intended to be fully coordinated and to agree. Where not specifically stated otherwise, all work and materials necessary for each unit of construction, even though only briefly mentioned or indicated, shall be furnished and installed fully and completely, including, but not limited to, the manufacturer's instructions and/or recommendations, as part of this Contract.

Any material specified by reference to the number, symbol, or title of a specified standard such as a Commercial Standard, a Federal Specification, a trade association standard, or other similar standards, shall comply with the requirements in the latest approved revision thereof and any amendments or supplements thereto in effect on the date of Notice to Bidders, except as limited to type, class, or grade, or modified in such reference. The standards referred to, except as modified in the Specifications, shall have full force and effect as though printed in these Specifications.

Section 2.05. Ownership and Use of Documents.
All original Drawings and Specifications prepared by the Architect are and shall remain the property of the District.

Section 2.06. Successors and Assigns.
The District and the Contractor each binds itself, its partners, successors, assigns and legal representatives to the other party hereto and to the partners, successors, assigns and legal representatives of such other party in respect to all covenants, agreements and obligations contained in the Contract Documents. The Contractor shall not assign the Contract or sublet it in whole or part without the written consent of the District nor shall the Contractor assign any moneys due or to become due to it hereunder without the prior written consent of the District.

Section 2.07. Written Notice.
Written notice may be accomplished by personal delivery, United States mail, delivery receipt email, facsimile or any other form of commercially accepted communication. The written notice shall become effective upon delivery. Delivery is complete when the notice is hand delivered to Contractor's home office, job-site office, or to Contractor's superintendent; or when the facsimile transmission is complete; or two days after mailing by U.S. mail; or upon actual delivery as evidenced by a delivery receipt.

Section 2.08. Rights and Remedies.
The duties and obligations of the Contractor imposed by the Contract Documents and the rights and remedies of the District available there under shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

The failure of the District, the District Representative, the Project Inspector or the Architect to insist in any one or more instances upon the strict performance of any one or more of the provisions of this Contract or to exercise any right herein contained or provided by law, shall not be construed as a waiver or relinquishment of the performance of such provision or right(s) or of the right to subsequently demand such strict performance or exercise such right(s) and the rights shall continue unchanged and remain in full force and effect.

The Contractor agrees that it can be adequately compensated by money damages for any breach of this Contract which may be committed by the District and hereby agrees that no default, act or omission of the District, the District Representative, the Project Inspector or the Architect, shall constitute a material breach of the Contract entitling the Contractor to cancel or rescind the provisions of the Contract or to suspend or abandon performance of all or any part of the Work. The Contractor hereby waives any and all rights and remedies to which it might otherwise be or become entitled, saving only its right to money damages.

Section 2.09. Unenforceability of any Clause.
If any clause or provision of the Contract Documents is held to be unenforceable or invalid, then that provision of the Contract shall be stricken and the remaining portion shall remain in full force and effect.

ARTICLE 3. BONDS AND BONDING; INDEMNIFICATION AND INSURANCE

Section 3.01. Bonds: Time to Submit.
Within ten (10) days after receipt of Notice of Intent to Award, and before the District will execute the Agreement for Construction, the Contractor to whom the Work is awarded shall furnish and deliver to the District bonds as set forth below in Sections 3.03, 3.04 and 3.05, except that contracts for amounts less than $25,000 will not be required to be accompanied by bonds.

Section 3.02. Qualifications of Surety.
All bonds shall be duly executed by a responsible corporate surety listed in the current version of the United States Department of the Treasury circular entitled "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies," admitted by the State of California Department of Insurance to do business in the State of California and acceptable to District.

Section 3.03. Performance Bond.
The Contractor shall submit a faithful Performance Bond on the form provided with the Contract Documents, conditioned upon the faithful performance by the Contractor of all requirements of the Contract Documents. The amount of the bond shall be in a sum no less than one hundred percent (100%) of the total Contract Sum.

Section 3.04. Labor and Materials Payment Bond.
The Contractor shall also submit a bond on the form provided with the Contract Documents, which in all respects complies with California Civil Code sections 9550, 9552, and 9554. This bond, hereinafter referred to as a "Payment Bond," shall be in a sum no less than one hundred percent (100%) of the Contract Sum.

Section 3.05. Supply Bond.
If work under the Contract is limited to supplying of materials or equipment only, a supply bond in the amount of one hundred percent (100%) of the Contract Sum will be required in lieu of performance and labor and materials bonds.

Section 3.06. Additional Bonding Requirements.
All bonds submitted shall include the following:

1. Full name and address of the Contractor, Surety, and District
2. Contract Date
3. Exact Contract Sum
4. Project name, address, and bid package number.
5. Signature of the Contractor
6. Corporate Seal if Applicable
7. Signature of authorized Surety representative.
8. Notarization of the Contractor and Surety
9. Power of Attorney
10. Local contact for Surety, with name, phone number, and address to which legal notices may be sent

Section 3.07. Bond Costs in Bids.
All costs for applicable Bid Bonds, Labor and Material Payment Bonds, Performance Bonds, and Supply Bonds shall be included in base bid.

Section 3.08. Indemnification.
To the fullest extent permitted by law, the Contractor shall defend with counsel acceptable to the District, indemnify and save harmless the District, the District Representative, and the Architect and any of their respective officers, agents, and employees from and against, any and all losses, claims, demands, damages, costs, expenses, attorney's fees, or liability of every nature arising out of or in any way connected with the performance or attempted performance of the provisions hereof, or in any way arising out of or connected with this Contract, including but not limited to, equitable relief, stop notice actions, or any acts or omissions, any wrongful act, or any negligent act or omission to act, whether active or passive, on the part of the Contractor or any of its agents, employees, independent contractors, subcontractors or suppliers; provided, further, without limiting the foregoing, that the defense and indemnity is intended to apply to any wrongful acts, or any actively or passively negligent acts or omissions to act, committed jointly or concurrently by the Contractor and the Contractor's agents, employees,

independent contractors, or subcontractors or suppliers, and the District, its agents, employees, or independent contractors. Nothing contained in the foregoing indemnity provisions shall be construed to require the Contractor to indemnify the District in contravention of Section 2782 of the Civil Code for the active or sole negligence or willful misconduct of the District.

To the fullest extent permitted by law, the Contractor's duty to defend shall extend, without limitation, to any suit or action founded upon any losses, claims, demands, damages, costs, expenses, attorney's fees, or liability of every nature arising out of or in any way connected with the performance or attempted performance of the provisions hereof, or in any way arising out of or connected with this Contract.

The defense and indemnity obligations expressly extend to and include any and all claims, demands, damages, costs, expenses, or liability occasioned as a result of damages to adjacent property caused by the conduct of the Work.

The defense and indemnity obligations expressly extend to and include any and all claims, demands, damages, costs, expenses, or liability occasioned as a result of the violation by the Contractor, the Contractor's agents, employees, or independent contractors, subcontractors or suppliers of any provisions of federal, state or local law, including applicable administrative regulations.

The defense and indemnity obligations also expressly extend to and include any claims, demands, damages, costs, expenses, or liability occasioned by injury to or death of any person, or any property damage to property owned by any person while on or about the Site or as a result of the Work, whether such persons are on or about the Site by right or not, whenever the Work is alleged to have been a contributing cause in any degree whatsoever.

In claims against any person or entity herein indemnified that are made by an employee of the Contractor or an employee of any of the Contractor's agents, independent contractors, subcontractors or suppliers, a person indirectly employed by the Contractor or by any of the Contractor's agents, independent contractors, subcontractors or suppliers, or anyone for whose acts the Contractor or any of the Contractor's agents, independent contractors, subcontractors or suppliers may be liable, the defense and/or indemnification obligation herein shall not be limited by any limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or the Contractor's agents, independent contractors, subcontractors or suppliers under workers' compensation acts, disability acts, or other employee benefit acts.

The defense and indemnification obligations herein shall not be limited by any assertion or finding that the person or entity indemnified is liable by reason of a non-delegable duty.

The defense and indemnities set forth herein shall not be limited by the insurance requirements set forth in the Contract Documents.

The defense and indemnification requirements herein set forth shall extend to claims occurring after this Contract is terminated as well as while it is in force.

Section 3.09. Indemnification of Adjacent Property Owners.
In the event the Contractor enters any agreement with the owners of any adjacent property to enter upon or adjacent to such property for the purpose of performing this Contract, the Contractor shall fully indemnify, defend and save harmless such person, firm, or corporation, state or other governmental agency which owns or has any interest in the adjacent property. The form and content of the indemnification agreement shall be approved by the District prior to commencement of any work on or about such property. The Contractor also shall indemnify the District as provided in Article 10. These provisions shall be in addition to any other requirements of the owners of adjacent property.

Section 3.10. Insurance.
The Contractor shall obtain, and maintain during the entire Contract Time, at its sole cost and expense, all insurance required by Sections 3.13 and 3.14. Certificates of such insurance and copies of the insurance policies and endorsements shall be delivered to the District within ten (10) days after being notified of the intent to award the Contract, and before execution of the Agreement for Construction by the District. Insurance Certificates must indicate Bid Package number and school name.

Every policy shall be endorsed to state that it shall not be assigned, canceled, or reduced in coverage without thirty (30) days' prior written notice to District. Every policy shall also be endorsed to state that the District shall be given notice of nonrenewal at least thirty (30) days prior to the nonrenewal date.

The Contractor shall not commence work until all required insurance documentation has been submitted to and accepted by the District.

Failure of Contractor to maintain all required insurance during the entire Contract Time shall constitute a default entitling the District to all rights and remedies that exist in the Contract Documents and/or by law.

The requirements as to the types and limits of insurance coverage, and any approval of said insurance by the District, is not intended and shall not in any manner limit or qualify the liabilities and obligations pursuant to this Agreement.

Any failure to comply with one or more of the requirements of this section by contractor shall not be deemed to be a waiver by the District of the requirements.

Section 3.11. Subcontractor's Insurance.
The Contractor shall not allow any Subcontractor to commence work on its subcontract until the Subcontractor has provided the insurance specified below. The Contractor shall require each of its Subcontractors to procure and to maintain, during the life of the subcontract, bodily and personal injury liability and property damage insurance, and workers' compensation insurance, of the type and in the same amount as specified herein, including, without limitation, the requirement that the Subcontractor's policy shall be endorsed (1) to include by name the District, Architect, District Representative, Low voltage consultant, Hazardous Materials Consultant, and any other consultant retained by the District, and their officers and employees as additional insured's and shall provide that they are primary with any insurance maintained by District as non-contributory and will have severability of interest endorsement, and (2) to waive all rights of subrogation against the District, District Representative, Architect, Low Voltage Consultant, Hazardous Materials Consultant, and any other consultant retained by the District, or any of their respective officials, employees and volunteers for losses arising from work performed by the Contractor for the District .

It shall be the responsibility of the Contractor to ensure that all Subcontractors comply with this provision, and to verify their compliance when requested by the District.

If requested by the District, the Contractor shall deliver certificates of insurance or copies of the insurance policies and endorsements of all Subcontractors; provided, however, that this authority shall not relieve the Contractor of its obligation to ascertain the existence of such insurance.

Section 3.12. Effective Date of Policies.
The insurance required by this article shall be maintained by the Contractor in full force and effect at all times during prosecution of the Work and until two (2) years after the final completion and acceptance thereof by District.

Section 3.13. Workers' Compensation and Employers' Liability Insurance.
In accordance with the provisions of Section 3700 of the Labor Code, the Contractor, and each subcontractor, shall secure the payment of compensation to its employees. The Contractor and each subcontractor shall provide workers' compensation insurance and occupational disease insurance as required by law and employers liability insurance with minimum limits of $1,000,000 covering all workplaces involved in the Contract Documents.

The Contractor shall sign and file with the District the following certificate on the form provided by the District:

> 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.

The Contractor shall require each subcontractor to file such statement prior to allowing that subcontractor to commence work.

The Contractor shall furnish a certificate of insurance or a certificate of permission to self-insure under the Workers' Compensation and Employers' Liability Insurance statutes of the State of California. The certificate shall provide that at least thirty (30) days' prior written notice shall be served on District prior to the cancellation or change of such insurance or self-insurance. Said certificate shall also provide that the insurer shall waive all rights of subrogation against the District, District Representative, Architect, Low Voltage Consultant, Hazardous Materials Consultant, and any other consultant retained by the District, and each of their respective officials, employees and volunteers for losses arising from work performed by the Contractor for the District. Such insurance shall be delivered to the District Representative within ten (10) days of being notified of the intent to award the Contract, and before the District will execute the Agreement for Construction.

Section 3.14. Liability Insurance.

Insurance is to be placed with insurers approved by the State of California Department of Insurance and with a Bests' rating of no less than (A-) Level VII.

A. The Contractor and its Subcontractors shall procure and maintain insurance on all of their operations during the progress of the Work, with reliable insurance companies, on forms acceptable to District, for the following minimum insurance coverage's:

   1. Comprehensive general liability insurance, including but not limited to, Owner's contingent coverage, and protection for claims of bodily injury and property damage liability, personal and advertising injury liability, and products completed operations liability. Coverage shall be with limits of not less than $1,000,000 per occurrence and $2,000,000 general aggregate.

      The insurance shall cover all operations of the Contractor and its Subcontractors, including but not limited to the following: (1) premises, operations and mobile equipment liability; (2) completed operations and products liability; (3) contractual liability insuring the obligations assumed by the Contractor and its Subcontractors under the Contract Documents; (4) independent contractor's contingent coverage; (5) explosion, collapse, and underground property damage; (6) broad form property damage liability endorsement; (7) personal injury liability endorsement.

   2. Automobile bodily injury and property damage insurance, including all owned, hired and non-owned equipment with combined bodily injury and property damage liability of $1,000,000.

   3. Additional coverage's and/or limits may be required in the Special Provisions, Section 00 73 00. If the Special Provisions require limits of general liability and automobile liability insurance exceeding those stated above, the Contractor shall carry excess or umbrella liability insurance providing excess coverage at least as broad as the underlying coverage with a limit equal to the amount stated in the Special Provisions per occurrence and aggregate.

   4. Any excess liability coverage used to supplement the general and automobile liability must either (1) be from the same carrier as the primary insurance, or (2) include the policy statement wherein it describes what the underlying primary coverage must be before the excess liability coverage takes effect.

B. The following terms shall be included in the liability insurance, either within the policy or by endorsement:

   1. All policies shall be endorsed to include by name the District, Architect, District Representative, Low Voltage Consultant, Hazardous Materials Consultant, and any other consultant retained by the District, and their officers and employees as additional insured's and shall provide that they are primary with any insurance maintained by District as non-contributory. Such policies will have severability of interest endorsement.

   2. The limits established under Section 3.14 shall apply separately to the Contractor's Work under this agreement. All liability insurance shall be written on an occurrence basis.

   3. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the District, District Representative, Architect, Low Voltage Consultant, Hazardous Materials Consultant, or any other consultant retained by the District, or any of their respective officials, employees or volunteers.

4. Coverage shall state that the Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

5. The insurer shall by separate endorsement agree to waive all rights of subrogation against the District, District Representative, Architect, Low Voltage Consultant, Hazardous Materials Consultant, and any other consultant retained by the District, or any of their respective officials, employees and volunteers for losses arising from work performed by the Contractor for the District.
6. The policy shall state that it is primary insurance and that any insurance or self-insurance fund maintained by or available to the District, District Representative, Architect, Low Voltage Consultant, Hazardous Materials Consultant, or any other consultant retained by the District, and each of their respective officers, agents, employees or volunteers shall be in excess of the Contractor's insurance and shall not be called upon to contribute to a loss covered by the policy.
7. The policy must provide that it shall not be canceled, suspended, voided or changed nor may the "retroactive date" of the policy or any renewal or replacement policy be changed without thirty (30) days' prior written notice to the District. The standard cancellation clause on the certificate shall read:

   Should any of the above described policies be canceled before the expiration date thereof, the issuing company will mail 30 days written notice to the certificate holder.

8. A cross liability endorsement must be included to the effect that each insured is covered as if separate policies had been issued to each insured.

9. The liability coverage may be either on a blanket basis or a policy which specifically identifies this agreement with a contractual liability endorsement.

10. Any deductibles or self-insured retentions must be declared to and approved by the District. Any and all deductibles or self-insurance retentions in the above described insurance policies shall be assumed by and be for the account of, and at the sole risk of the Contractor.

Section 3.15. Builder's Risk Insurance.
The Contractor shall, at its sole expense, purchase, maintain and keep in force at all times during the term of the Contract and until the date of transfer of the insurable interest to and acceptance by the District, insurance as to protect the District, the District Representative and the District's agents and employees, the Architect, Low Voltage Consultant, Hazardous Materials Consultant, or any other consultant retained by the District, and each of their respective officers, agents, employees or volunteers, the Contractor, Subcontractors and sub-subcontractors from loss or damage to work in the course of construction. This insurance shall be in the form of "Builders All-risk", "All-risk Installation Floater" or the equivalent, and the limits of liability shall be equal to one hundred-fifty percent (150%) of the contract value.

A. The following terms shall apply to such coverage:

1. Coverage shall be written on a completed value, non-reporting form, on a replacement cost basis, and shall cover the property against all risks of physical loss or damage, including:

   a. Loss or damage that ensues damage from design error (only if the contractor or subcontractors are designing any portion of the project), defective materials, faulty workmanship, mechanical breakdown or electrical damage. Loss from electrical damage will include any loss or damage arising out of testing, magnetic disturbance and changes in temperature or humidity.

2. The property covered shall include the Work, including any materials, equipment or other items to be incorporated therein while the same are located at the construction site, stored offsite, while in transit or at the place of manufacture. The policy shall contain a provision that both the interests of the District and the Contractor are covered and that any loss shall be payable to the District and the Contractor as their interests may appear.

3. When stated in the Special Provisions (Section 00 73 00), Builder's Risk insurance shall include Delay in Opening coverage with limits of liability, and for the period of time, as set forth in the Special Provisions. Coverage shall include interest and/or principal payments that become due and payable by the District upon completion of construction or other date as set forth in the Special Provisions, debt service, expense, loss of earnings or rental income or other loss incurred by the District, without deduction, due to the failure of the Project being completed on schedule.

4. The policy shall be endorsed to name the District as an additional payee.

B. If not covered by Builder's Risk insurance or any other property or equipment insurance required by the Contract Documents, the Contractor shall, at its sole expense, purchase, maintain and keep in force at all times during the term of the Contract property insurance (equal to one hundred-fifty percent (150%) of the contract value) for portions of the Contractor's work and/or equipment to be incorporated therein stored offsite or in transit.

ARTICLE 4. PERMITS, LICENSES, ORDINANCES, AND REGULATIONS

Section 4.01. Basic Standard.
The Contractor shall conduct the Work so that all laws and ordinances for the protection of the public and the workers shall be obeyed fully both by the Contractor and by all subcontractors on the Site.

The Contractor shall comply with the requirements of the California State Licensing Board and have a valid contractor's license which is to be active as to the date of the receipt of bids and maintained in "Good Standing" from the receipt of bids throughout the Project. The class of license required is as indicated in Section 00 73 00, Special Provisions.

The Contractor, and any subcontractor listed in accordance with Public Contract Code section 4104, shall be registered pursuant to Labor Code section 1725.5 prior to engaging in the performance of any public work contract that is subject to the requirements of Division 2, Part 7, Chapter 1 of the California Labor Code, and shall maintain current registration throughout the term of this Contract.

Section 4.02. Permits.
The District will pay all fees required by the Division of the State Architect, Department of General Services, State of California. The District will reimburse the Contractor for utility connection fees, encroachment permits, utility service charges other than temporary utility charges unless otherwise indicated, necessary for the completion of the Work. All other fees and permits shall be at the expense of the Contractor. Proper documentation of fee, permit, and utility service charges shall be submitted to the District through the District Representative. No mark-up shall be allowed the Contractor on these reimbursable charges.

The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations or orders of any public authority bearing on the performance of the Work.

Except as provided above, the District shall secure and pay for necessary approvals, easements, assessments and charges required for the construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

Section 4.03. Compliance with Laws and Regulations.
The Contractor shall keep itself fully informed of and shall observe and comply with, and shall cause any and all persons, firms, or corporations employed by it or under it to observe and comply with all federal and state laws, and county or municipal ordinances, regulations, orders, and decrees which in any manner affect those engaged or employed on the Work, or the materials used in the Work, or in any way affect the conduct of the Work.

All work shall be performed in accordance with the rules and regulations, Title 24, Parts 1-5 and 9, California Code of Regulations, and Division of the State Architect, and a copy shall be kept on the job at all times during construction.

ARTICLE 5. INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

Section 5.01. Familiarity with Project Site Conditions and Contract Documents.
Submission of a bid by the Contractor is a representation that the Contractor has visited the Site, is satisfied as to the nature and location of the Work, is satisfied as to the character, quality and quantity of the Work, has become familiar with the local conditions under which the Work is to be performed, has made whatever contact and investigation with utility companies that it deems necessary, and has correlated its site observations with the requirements of the Contract Documents. Failure to visit the Site will not relieve the Contractor of responsibility for observing and considering those conditions which a qualified contractor would have observed.

Section 5.02. Subsurface Conditions.
Where investigations of subsurface conditions have been made by or on behalf of the District with respect to subsurface conditions, utilities, foundations, or other structural designs, and that information is shown on the Drawings or Plans, it represents only a statement by the District as to the character of the materials which have been encountered by the District's investigation. This information is only included for the convenience of bidders, including the Contractor.

Investigations of subsurface conditions are made for the purpose of design only. The District assumes no responsibility with respect to the sufficiency or accuracy of borings or of the log of test borings or other preliminary investigations or of the interpretation thereof. There is no guaranty, express or implied, that the conditions indicated are representative of those existing throughout the Project or the Work, or any part of the Project or the Work, or that unanticipated conditions may not occur. When a log of test borings, soils studies and/or any other report of subsurface conditions is included with the Drawings or Plans, it is expressly understood that such log, soils studies and/or report of subsurface conditions does not constitute a part of the Contract Documents, represents only an opinion of the District as to the character of the materials to be encountered, and is included in the Drawings or Plans only for the convenience of bidders, including the Contractor. Making such information available to bidders, including Contractor, is not to be construed in any way as a waiver of the provisions of these General Conditions, and bidders, including Contractor, must satisfy themselves through their own investigations as to the conditions to be encountered.

Section 5.03. Sections of Drawings and Specifications.
For convenience, the specifications and drawings in the Contract Documents are arranged in several sections, but this separation shall not be considered as the limits of the work required of any separate trade. The scope of work is that indicated in Specification 00 73 00 Special Provisions, Article 1, Scope of Work. The terms and conditions of the work to be performed by any Subcontractor are strictly between the Contractor and the Subcontractor.

Section 5.04. Diagrammatic Drawings.
Drawings showing the locations of equipment, wiring, piping, etc., unless dimensioned, are diagrammatic, and conditions will not always permit their installation in the exact location shown. In such event, the Contractor shall submit an RFI and obtain a response before proceeding with the work in question. Unless there is a material increase in the Contractor's scope of work, installation as specified in the response to the RFI shall be without any additional compensation to the Contractor and without any increase in the Contract Time. Any work done after discovery of the issue, until authorization to proceed based on the response to the RFI, will be done at the Contractor's risk.

Section 5.05. Interpretation and Additional Instructions.
Should the Contractor discover any conflicts, omissions, or errors in the Contract Documents, or have any question concerning interpretation or clarification of the Contract Documents, or if it appears that the Work to be done or any matters relative thereto are not sufficiently detailed or explained in the Contract Documents, then before proceeding with the work affected, the Contractor shall within 48 hours notify the District Representative in writing and request interpretation, clarification, or additional detailed instructions and/or drawings concerning the work. All such questions shall be resolved and instructions to the Contractor issued by the Architect.

Should the Contractor proceed with the work affected before receipt of instructions from the Architect, and, in the case of a change to the Work, before receipt of authorization to proceed, it shall remove and replace or adjust any work which is not in accordance therewith, and it shall be responsible for any resultant damage, defect, or added cost without an extension of the Contract Time.

Section 5.06. Architect's Instruction Bulletins and Drawings.
In addition to the Drawings incorporated in the Contract Documents, the Architect, through the District Representative, may furnish such supplemental drawings or instructions from time to time as may be necessary to make clear or to define in greater detail the intent of the Contract Drawings and Specifications. In furnishing additional drawings or instructions, the Architect shall have the authority to make minor changes in the Work, not involving any extra cost, and not inconsistent with the overall design of the Project. If extra cost is known to be involved, these instructions will be accompanied by an RFP. These supplemental drawings and instructions shall become a part of the Contract Documents; the Contractor shall make its work conform to them.

Section 5.07. Notification of Disagreement Regarding Scope of Work.
If agreement cannot be reached as to cost, and the Contractor does not agree that work due to an interpretation or supplemental drawing or instruction is within the scope of the Contract Documents, the Contractor shall, within seven (7) days after receipt of the interpretation or instruction, submit a Proposed Change Order to the District Representative specifying in detail in what particulars the contract requirements were exceeded and the change in cost resulting there from. The District Representative shall then determine whether a Change Order shall be issued in accordance with Article 15 of these General Conditions. The Contractor shall nevertheless perform such work without delay.

The time during which the protest is pending shall not affect the Contract Time.

Section 5.08. As-Built Drawings and Specifications.
The Contractor shall maintain a hard copy or PDF master set of red line Drawings and Specifications at the Site which shall be updated weekly to reflect current as-built conditions of the Work as the Work progresses. The information to be recorded by the Contractor will be determined by the Architect, who will be responsible for preparing the final, reproducible as-built drawings based upon the information submitted by the Contractor. The Contractor's as-built information shall be clear and legible, and at a minimum, the following information shall be inserted and dimensioned on those Drawings and Specifications, in RED, by the Contractor: the exact horizontal and vertical location of all installations in their finished condition, including all electrical, plumbing and mechanical installations; all changes in construction, materials and installed equipment; posting of all issued addenda, Request for Information (RFI) signed by the Architect and Architect's Instruction Bulletins with back-up to the bid documents in all applicable locations along with adequate dimensional data, both horizontal and vertical, to allow location of covered installations; the identification of each change authorized by Directive, and the number of that Directive. The updated drawings and specifications shall be available for review by the District Representative and the Inspector. If as-builts are marked up in PDF format, the file shall be made available remotely in a manner acceptable to the District Representative and Inspector.

Written confirmation from the District Representative that the as-builts have been properly updated weekly shall be submitted with each pay application request, and the existence of such properly updated as-builts shall be a condition precedent to payment. Failure to comply with the preparation and submission of as-builts may result in the District withholding the current progress payment.

As a condition to certification of final completion, the Contractor shall provide signed and dated original as-built drawings and specifications in a PDF color format, with a resolution of 600 DPI and each plan sheet and specification section bookmarked by name, number or title, together with all additional information requested by the Architect to enable the Architect to prepare a set of final, reproducible as-built drawings and specifications. Timely submission of complete as-built documents shall be a condition precedent to certification of final completion and to final payment. Delays in the submission of complete as-built documents may subject the Contractor to liquidated damages.

ARTICLE 6. SUBCONTRACTOR LISTING AND SUBSTITUTION

Section 6.01. Subcontracting.
If the Contractor subcontracts any work to be performed or materials to be supplied pursuant to this agreement, the Contractor shall be as fully responsible to the District for the acts and/or omissions of such Subcontractor or supplier and of the persons either directly or indirectly employed or engaged as subcontractors by such Subcontractor or supplier as it is for its own acts and omissions.

The Contractor shall bind every Subcontractor or supplier, and every subcontractor of a Subcontractor, by the terms of the Contract Documents.

The Contractor shall cause each of its Subcontractors by contract, to have an active contractor's license pertaining to its classification of work maintained in "good standing" from commencement of the Subcontractor's work through final completion of the Project.

All Subcontractors listed in accordance with Public Contract Code section 4104 shall be registered pursuant to Labor Code section 1725.5 prior to engaging in the performance of any public work contract that is subject to the requirements of Division 2, Part 7, Chapter 1 of the California Labor Code, and shall maintain current registration throughout the term of this Contract.

The Contractor shall not perform work on the Project with a Subcontractor who is ineligible to perform work on public works project pursuant to Labor Code sections 1777.1 or 1777.7.

Section 6.02. Disputes Between Subcontractors and/or the Contractor.
If, through acts or neglect on the part of the Contractor, including failure to supervise and control its Subcontractors or suppliers, any other contractor, subcontractor or supplier or supplier on the Project, or worker suffers loss or damage, the Contractor agrees to settle with such other contractor, subcontractor, supplier, or worker by agreement or arbitration, if such other contractor, subcontractor, or worker shall assert any claim against the District or any of its officers, agents, or employees, on account of any damage alleged to have been so sustained.

In the event of the receipt of any such claim, the District shall notify the Contractor, who shall defend, indemnify, and save harmless the District and all of its officers, agents, and employees against any such claim.

Section 6.03. Listing of Subcontractors.
The Contractor shall comply with the requirements in the Instructions to Bidders regarding the listing of Subcontractors and shall comply with the requirements of the Subletting and Subcontracting Fair Practices Act, Chapter 4 of Part 1 of Division 2 of the Public Contract Code, commencing with Section 4100, forbidding bid shopping and bid peddling, requiring accurate listing of all Subcontractors, and requiring Subcontractors to be licensed.

Should the Contractor violate any of the provisions of this Section, the violation shall be deemed a breach of this Contract and the District shall have all remedies provided by California law, including but not limited to those provided in Public Contract Code Section 4110, allowing termination of the Contract or a penalty assessment of ten percent (10%) of the subcontract amount.

Section 6.04. Dealings with Subcontractors.
The District and its representatives will deal only with the Contractor, and the Contractor shall be responsible for the proper execution of the Work. Any and all discussions between any subcontractor or supplier and the District or any of its representatives shall be initiated through the Contractor or its representative.

Nothing contained in the Contract Documents shall create any contractual relationship between any subcontractor or supplier and the District or any of its representatives, nor shall this Contract be construed to be for the benefit of any subcontractor or supplier.

Section 6.04. Subcontractor List for Labor Compliance.
The Contractor shall provide the District with a list of all subcontractors performing work on the Project, regardless of subcontract amount and regardless of whether the subcontractor is under contract with the Contractor or under contract with a Subcontractor, for the purpose of labor compliance monitoring. It shall be the Contractor's responsibility to notify the District of any additions or deletions to this subcontractor list from the commencement of the Work through final payment.

Section 6.05. Termination of Unsatisfactory Subcontractors.
When any portion of the Work that has been subcontracted by the Contractor is not being prosecuted in a satisfactory manner, or when materials supplied do not conform to the Contract Documents and these deficiencies form the basis of a default notice issued pursuant to Article 16, the District may direct the Contractor to discharge the subcontractor or supplier.

Any subcontractor or supplier which is discharged shall not again be employed on this Project.

Any termination of a Subcontractor pursuant to this Section shall be in strict conformity with the requirements of the Subletting and Subcontracting Fair Practices Act, Part 1 of Division 2 of the Public Contract Code, commencing with Section 4100.

Section 6.06. Payment of Subcontractors and Suppliers.
The Contractor shall make all payments to Subcontractors and suppliers as expeditiously and timely as possible, consistent with any applicable law so as to prevent any stop notices, liens or claims from being filed against the District or the Site.

ARTICLE 7. STATE REQUIREMENTS REGARDING WAGES, HOURS, AND EQUAL OPPORTUNITY

Section 7.01. Prevailing Wage Rate; Notice.
As provided under Labor Code Sections 1726-1861, the Director of the Department of Industrial Relations (DIR) of the State of California has determined the prevailing rate of wages in the locality in which the work on the project is to be performed for each craft, classification, or type of worker needed to execute this Contract. The prevailing rates so determined are on file with the District, and they are available for public inspection. They may also be obtained on the internet at **http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm**. Those prevailing wage rates hereby are incorporated in this agreement and made a part hereof.

The Contractor shall obtain and post copies of these prevailing wage rates in a prominent place at the job site, in accordance with the regulations of the Department of Industrial Relations.

The Project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

The Contractor shall post on the jobsite a Notice containing the following language:

> This public works project is subject to monitoring and investigative activities by the Department of Industrial Relations ("DIR"), State of California. This Notice is intended to provide information to all workers employed in the execution of the contract for public work and to all contractors and other persons having access to the job site to enable the DIR to ensure compliance with and enforcement of prevailing wage laws on public works projects.
>
> The prevailing wage laws require that all workers be paid at least the minimum hourly wage as determined by the Director of Industrial Relations for the specific classification (or type of work) performed by workers on the project. These rates are listed on a separate job site posting of minimum prevailing rates required to be maintained by the public entity which awarded the public works contract. Complaints concerning nonpayment of the required minimum wage rates to workers on this project may be filed with the DIR at any office of the Division of Labor Standards Enforcement ("DLSE").
> Local Office Telephone Number: _____
>
> Complaints should be filed in writing immediately upon discovery of any violations of the prevailing wage laws due to the short period of time following the completion of the Project that the DIR may take legal action against those responsible.
>
> Complaints should contain details about the violations alleged (for example, wrong rate paid, not all hours paid, overtime rate not paid for hours worked in excess of 8 per day or 40 per week, etc) as well as the name of the employer, the public entity which awarded the public works contract, and the location and name of the project.
>
> For general information concerning the prevailing wage laws and how to file a complaint concerning any violation of these prevailing wage laws, you may contact any DLSE office. Complaint forms are also available at the DIR website found at:
> www.dir.ca.gov/dlse/PublicWorks.html.

Section 7.02. Payment of Prevailing Wage Rates.
Pursuant to Labor Code Section 1772, workers employed by contractors or subcontractors in the execution of any contract for public work are deemed to be employed upon public work as defined in Labor Code Sections 1720-1725. Therefore, the Contractor shall pay, and shall cause all subcontractors, whether under contract with the Contractor or under contract with any Subcontractor, to pay not less than the specified prevailing wage rates to all workers employed in the execution of this Contract.

In accordance with Labor Code Section 1775, the Contractor shall monitor the payment of the specified general prevailing rate of per diem wages by subcontractors to employees by periodic review of the certified payrolls of the subcontractors.

Section 7.03. Wage Rate for Crafts Not Listed.
The responsibility to check prevailing wage rates is the Contractor's. Pursuant to Labor Code Section 1773, the Contractor may file with the Director of DIR or the Chief of the Division of Labor Standards Enforcement ("DLSE") a petition to review a determination of any rate or rates made by the Director of DIR. The Contractor may also petition the Director of DIR to make a determination for a particular craft, classification or type of work not covered by a general determination. Pending the review or determination, the wages may be assumed to be those in the applicable collective bargaining agreement, but no adjustment in the bid or Contract Price shall be made if such assumption is incorrect.

Section 7.04. Records of Hours Worked and Wages.
The Contractor shall keep, and shall cause all subcontractors on the Project to keep, certified payroll records of the hours and wages of all employees employed on the Project, and those records shall be open at all times for inspection by the District and/or the Division of Labor Statistics and Enforcement, in accordance with Sections 1776 and 1812 of the Labor Code. The certified payroll records shall contain at least the following information: the name, address, social security number, work classification, dates of payroll period, straight time, and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by the Contractor and/or each subcontractor in connection with the Work.

In the event that the Contractor and/or any subcontractor fails to submit certified payroll records to the District within ten (10) calendar days of a request from the District for the records, the Contractor and/or the subcontractor shall, as a penalty, forfeit one hundred dollars ($100) per calendar day, per worker, until strict compliance is effectuated. These penalties shall be withheld from progress payments then due and/or to become due. The Contractor is not subject to this penalty assessment due to the failure of a subcontractor to comply with these requirements if the Contractor can demonstrate that it has fully complied with the provisions of Labor Code Section 1776.

The Contractor shall not carry on its payrolls any person not actually employed by the Contractor, nor shall it carry on its payrolls employees of any subcontractor. The Contractor shall show on its payrolls all persons actually employed by the Contractor on the Project, in any capacity. The Contractor shall cause all subcontractors on the Project, whether under contract with the Contractor or under contract with any Subcontractor, to comply with this Section.

In accordance with Government Code Section 8546.7, or any amendments thereto, all books, records, and files of the Contractor, or any subcontractor connected with the performance of this Contract, shall be subject to examination and audit by the Auditor General for a period of three (3) years after final payment. Contractor shall preserve and cause all subcontractors to preserve such books, records and files for the audit period.

Section 7.05. Additional Requirements for Labor Compliance.
The Contractor shall comply with the following additional requirements and shall cause all subcontractors on the Project, whether under contract with the Contractor or under contract with any Subcontractor, to comply. The records kept by the Contactor and all subcontractors of the hours and wages of all employees employed on Project also shall be open at all times for inspection by the DIR and DLSE, in accordance with Sections 1776 and 1812 of the Labor Code. Such records shall be furnished electronically to the Labor Commissioner of the DIR monthly, unless more frequent submission is required herein, and shall be furnished within 10 days of any separate request by the DIR or DLSE. Payroll records shall be furnished in a format prescribed by the DIR and uploaded into the electronic certified payroll reporting (eCPR) system.

On a random basis and at such other times as it deems appropriate, the DIR also may confirm the accuracy of payroll reports, including by corroboration of information in payroll reports through independent sources, including without limitation worker interviews, examination of any time and pay records found within the definition of "Payroll Records" in section 16000 of Title 8 of the California Code of Regulations, direct verification of "Employer Payments" (as defined at section 16000 of Title 8 of the California Code of Regulations) through third-party recipients of those payments, or any other legal and reasonable method of corroboration. As part of its confirmation process, the DIR may require Contractor and any of its subcontractors to furnish for inspection itemized statements prepared in accordance with Labor Code Section 226. The DIR may conduct random confirmation based on a recognized statistical sampling of the records submitted.

The DIR may conduct in-person inspection(s) at the site or sites at which the Work of the Project is being performed ("On-Site Visits"). On-Site Visits may include visual inspection of required job site notices, including but not limited to (1) the determination(s) of the Director of DIR of the prevailing wage rate of per diem wages required to be posted at each job site in compliance with Labor Code Section 1773.2; (2) the Notice of pay days and time and place of payment required by Labor Code Section 207; and (3) any other notices prescribed by law. On-Site Visits may also include inspections of records, inspections of the work site and observation of work activities, interviews of workers and others involved with the Project, and any other activities deemed necessary by the DIR to ensure compliance with prevailing wage requirements. In accordance with Labor Code Section 90, the Labor Commissioner and his deputies and agents shall have free access to any construction site or other place of labor and may obtain any information or statistics pertaining to the lawful duties of the Labor Commissioner, including but not limited to evidence of compliance with Labor Code Section 226 (itemized wage statements for employees) and any other laws enforced by the Labor Commissioner.

In accordance with Section 16463 of Title 8 of the California Code of Regulations ("8 CCR Section 16463"), the District may, on its own or if required by the Labor Commissioner, withhold funds due to the Contractor when payroll records are delinquent or inadequate. The amount withheld shall be those payments due or estimated to be due to the Contractor or subcontractor whose payroll records are delinquent or inadequate, plus any additional amount that the Labor Commissioner has reasonable cause to believe may be needed to cover a back wage and penalty assessment against the Contractor or subcontractor whose payroll records are delinquent or inadequate. The Contractor shall cease all payments to a subcontractor whose payroll records are delinquent or inadequate until the Labor Commissioner provides notice that the subcontractor has cured the delinquency or deficiency. When payments are withheld under 8 CCR Section 16463, the Labor Commissioner will provide the Contractor and subcontractor, if applicable, with immediate written notice that includes all of the following: (1) a statement that payments are being withheld due to delinquent or inadequate payroll records, and that identifies what records are missing or states why records that have been submitted are deemed inadequate; (2) specifies what amounts the District has been directed to withhold; and (3) informs the Contractor or subcontractor of the right to request an expedited hearing to review the withholding of payments under Labor Code Section 1742, limited to the issue of whether the records are delinquent or inadequate or the Labor Commissioner has exceeded his or her authority under 8 CCR Section 16463. Where the violation is by a subcontractor, the Contractor shall be notified of the nature of the violation and reference shall be made to Contractor's rights to withhold or recover payments from the subcontractor under Labor Code Section 1729. The withholdings under 8 CCR Section 16463 do not preclude assessment of penalties under Labor Code Section 1776(g) for failure to timely comply with a written request for certified payroll records, as set forth below.

Section 7.06. Underpayment of Wages.
The Contractor agrees that in the event of underpayment of wages to any employee on the Project, whether by the Contractor or any subcontractor on the Project, the District may retain from payments due to the Contractor, an amount sufficient to pay such worker the difference between the wages required to be paid by the DIR, and the wages actually paid such worker for the total number of hours worked, plus any penalties and forfeitures. The District may disburse such retention to such employees.

Section 7.07. Apprentices.
Attention is directed to the provisions of Sections 1777.5, 1777.6 and 1777.7 of the Labor Code concerning the employment of apprentices by the Contractor or any subcontractor.

The Contractor and all subcontractors on the Project shall comply with the requirements of Sections 1777.5 and Section 1777.6 of the Labor Code in the employment of apprentices. Violation of these requirements shall subject the Contractor and/or subcontractor to the penalties set forth in Section 1777.7 of the Labor Code and/or otherwise provided by law or Contract.

Information relative to apprentice standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, ex-officio the Administrator of Apprenticeship, San Francisco, California, from the Division of Apprenticeship Standards or its branch offices, and/or on the DLSR website at www.dir.ca.gov/DLSR/PWD. Apprentices employed on the Project must at all times work with or be under the direct supervision of a journeyman or journeymen.

Section 7.08. Penalties.

In accordance with Articles 2 and 3, Chapter 1, Part 7, Division 2 of the Labor Code, particularly Sections 1775, 1776, 1777.7 and 1813, the Contractor shall forfeit to District as a penalty the sum specified below, over and above any retention or withholds otherwise authorized by the agreement, as follows:

A. Up to two hundred dollars ($200) for each calendar day, or portion thereof, for each worker paid less than the applicable prevailing wages for any work done by him/her under this Contract or under any subcontract on the Project, with the amount to be determined by the Labor Commissioner in accordance with the considerations set forth in Labor Code section 1775. If a worker employed by a subcontractor on the Project is paid less than the prevailing wages by the subcontractor, the Contractor is not subject to this penalty assessment if the Contractor can demonstrate that it did not have knowledge of that failure of the subcontractor to pay the prevailing wages and that it strictly complied with the requirements of Labor Code Section 1775(b).

B. Twenty-five dollars ($25) for each worker employed in the execution of this agreement by the Contractor or by any subcontractor on the Project for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week in violation of the provisions of Article 3.

C. Failure to provide certified payroll records to the District or to the Labor Commissioner within ten (10) calendar days of a request, shall, in addition to resulting in a withholding of payments due or estimated to be due, result in a penalty in the amount of one hundred dollars ($100) for each calendar day, or portion thereof, for each worker until strict compliance is effectuated. The Contractor is not subject to this penalty assessment due to the failure of a subcontractor to comply with these requirements if the Contractor can demonstrate that it has fully complied with the provisions of Labor Code Section 1776.

D. Knowing violation of Labor Code Section 1777.5 shall yield a penalty in an amount not exceeding one hundred dollars ($100) for each full calendar day of non-compliance. A Contractor or subcontractor who knowingly commits a second or subsequent violation of Section 1777.5 within a three-year period, where noncompliance results in apprenticeship training not being provided as required, shall forfeit as a civil penalty the sum of no more than three hundred dollars ($300) for each full calendar day of noncompliance.

Section 7.09. Hours of Work; Approval of Schedules.
Eight (8) hours of labor constitutes a legal day's work, and forty (40) hours constitutes a legal work week. No worker employed at any time by the Contractor, or by any subcontractor upon the Project, shall be required or permitted to work more than eight (8) hours in any one calendar day or forty (40) hours in any one week, except as provided in Labor Code Sections 1810 through 1815.

Overtime shall be paid at the rate of not less than one and one-half (1-1/2) times the basic rate of pay, or at such other rate as stated on the applicable Determination issued by the DIR, or as may be required by applicable statutes or collective bargaining agreements.

The District reserves the right to approve or disapprove the days scheduled for work, and the hours during which work is in progress.

Section 7.10. Compliance with State Anti-Discrimination Laws.
The Contractor shall comply with Section 1735 of the Labor Code, which provides as follows:

> "A contractor shall not discriminate in the employment of persons upon public works on any basis listed in subdivision (a) of Section 12940 of the Government Code, as those bases are defined in Sections 12926 and 12926.1 of the Government Code, except as otherwise provided in Section 12940 of the Government Code. Every contractor for public works who violates this section is subject to all the penalties imposed for a violation of this chapter."

ARTICLE 8. SUPERVISION AND LABOR

Section 8.01. Supervision Procedures.
The Contractor shall supervise and direct the Work using its best skill and attention. The Contractor shall be solely responsible for all construction means, methods, techniques, and procedures and for coordinating all portions of the Work under the Contract.

The Contractor shall be responsible to the District for the acts and omissions of its employees, subcontractors and their agents and employees and other persons performing any of the Work.

It is prohibited to hire undocumented workers. The Contractor shall secure and cause its Subcontractors to secure proof of eligibility/citizenship to work from all workers.

The Contractor shall not be relieved from its obligations to perform the Work in accordance with the Contract Documents either by the activities or duties of the Architect or the District Representative in their administration of the Contract or by inspections, tests or approvals (or the lack thereof) required or performed under Article 9 by persons other than the Contractor.

Section 8.02. Skilled Labor.
All non-apprentice labor shall have the skills of a journeyman in the applicable trade. All workmanship shall be of the highest quality and finish in all respects.

Section 8.03. No Tenancy.
All workers, contractors, or contractors' representatives are admitted to the Site only for the proper execution of the Work, and have no tenancy.

Section 8.04. Dismissal of Unsatisfactory Employees.
All employees engaged in the Work will be considered employees of the Contractor.

The Contractor shall at all times enforce strict discipline and good order among all employees including compliance with the District Guidelines for Conduct on School Sites and shall not employ on the Work any unfit person or anyone not skilled in the assigned task as defined in Section 8.02. The Contractor shall remove, or cause a subcontractor to remove from the Project, any incompetent employee, or any employee not skilled for the type of work required as defined in Section 8.02, or any employee who does not comply with the District Guidelines for Conduct on School Sites. The District may require that the Contractor immediately remove from the Work any employee for cause.

Section 8.05. Personal Attention and Superintendence; Contractor's Agent.
The Contractor shall supervise the work to the end that it shall be faithfully prosecuted. The Contractor shall at all times while the Contractor's scope of work is in progress keep a full-time superintendent who is fully empowered to act as agent for the Contractor on the Site. The Contractor shall advise the District in writing of its agent prior to the start of any work. The Contractor shall provide résumés for all of the Contractor's supervisory employees to be assigned to the Project for District review, and the District may reject any supervisory employees not deemed to be qualified at the sole discretion of the District. The Contractor shall be responsible for the faithful observation of all instructions delivered to its authorized agent(s).

If the Contractor's superintendent performs labor on the Project, the Contractor shall cause the superintendent to be paid at the prevailing wage for the classification of work performed. However, no additional compensation will be paid by the District for any work performed by the full-time superintendent.

In the event that the Contractor fails to provide a qualified full-time superintendent on the Site on any given day when work is being performed, the District may assess a liquidated damage of $500/day, which amount allows for the hiring of a replacement superintendent.

Section 8.06. Inspection of the Work of Other Contractors.
It shall be the duty of the Contractor and all subcontractors, before beginning any work, to examine all construction and work of other contractors and/or subcontractors that may affect their work, and to satisfy themselves that

everything is in proper condition to receive such work. The Contractor shall notify the District Representative in writing prior to starting work of any discrepancies or conditions which deviate from the Contract Documents or are otherwise unacceptable. Failure on the part of the Contractor to so notify the District Representative shall constitute an acceptance by the Contractor and all subcontractors of all construction in place as being suitable in all respects to receive further work by the Contractor or subcontractors.

Section 8.07. Contractor's Coordination of Work.
The District reserves the right to do other work in connection with the Project by separate contract or otherwise. The Contractor shall at all times conduct its work so as to impose no hardship on the District or others engaged in the Work. The Contractor shall adjust, correct and coordinate its work with the work of others so that no delays or discrepancies shall result in the whole Project.

Section 8.08. Daily Reports.
No less than on a weekly basis, the Contractor's superintendent shall submit to the District Representative daily reports on the District's furnished form (via Constructware), which daily reports shall include, without limitation, the identity of subcontractors on the Site; an accurate headcount of workers on the Site; materials and equipment delivered to the Site; visitors to the Site; work performed; and any problems encountered.

Section 8.09. Fingerprinting.
Education Code section 45125.1 and 45125.2 apply to this Agreement. The Contractor shall, prior to commencement of Work, comply with either of the methods of ensuring safety set forth in Education Code section 45125.2(a)(1) (installation of a physical barrier) or 45125.2(a)(2) (continual supervision by an employee of Contractor who has not been convicted of a serious or violent felony). If the Contractor elects to provide continual supervision pursuant to Education Code section 45125.2(a)(2), Contractor shall require any person affiliated with Contractor (or, in appropriate cases, himself or herself) to be fingerprinted by the Department of Justice ("DOJ") if that person will have unsupervised access to school campuses. Upon verification from DOJ that those persons fingerprinted have no record of a serious or violent felony, the Contractor will so certify by signing and submitting to the Governing Board of District the certification form attached as Exhibit A to the Agreement for Construction. In addition, Contractor shall submit the names of those persons who have received clearance and are authorized to have unsupervised access to school campuses on a form as indicated in Exhibit B to the Agreement for Construction. Any person whose name is not on the cleared list may not have such access. In that case, Contractor must make arrangements with District for appropriate access. No person with a violent or serious felony as reported by DOJ may have access to the school campuses.

Failure to comply with these terms, or permitting unsupervised access by an employee whose name has not been cleared by DOJ as certified by the Contractor shall constitute grounds for termination of this Agreement.

ARTICLE 9. INSPECTION AND TESTING

Section 9.01. Inspection.
Inspection shall be provided as required under CCR Title 24, current edition. All inspection costs will be paid for by the District, including special inspection required by Title 24, except as noted otherwise below. A list of required inspections for the Project is included in the Contract Documents.

The Inspector shall be approved by the District, DSA and the Architect. The Inspector will be employed by the District and will perform all inspections in accordance with Title 24, parts 1-5.

Section 9.02. Authority of Project Inspector; Stop Work Notices.
The designated Project Inspector shall be considered to be a representative of the District. It is the inspector's duty to inspect the Work.

The Project Inspector shall have the authority to order the work designated for inspection stopped if a determination is made that work is proceeding in violation of the Contract Documents or any orders issued by the District, its representatives, or the Architect. The failure of the Project Inspector to order the work stopped does not excuse the Contractor from complying with the Contract Documents for that work.

Upon issuing a stop work notice, the Project Inspector shall notify the Architect, who shall inspect the work in question and determine whether it does or does not comply with the Contract Documents. The decision of the Architect shall be final, subject to the disputes procedures in Article 23. The Contractor shall thereafter comply with the instructions of the Architect regarding corrections needed to cure the defect. The suspended work shall be resumed only when the Architect's instructions are fulfilled. The Contractor shall not be entitled to an extension of time in the event of such suspension of work, provided the stop work notice is determined to be supported by the facts.

Section 9.03. Effect of Inspections.
Neither the final inspection and payment, nor any interim inspection or progress payment shall relieve the Contractor of its obligation to fulfill the Contract as required by the Contract Documents.

Any work, materials or equipment not meeting the requirements and intent of the Contract Documents may be rejected, and unsuitable work or materials shall be made good, notwithstanding the fact that such work or materials may previously have been inspected and/or payment therefore may have been made.

Section 9.04. Notice to District of Inspection.
Where the Contract Documents, instructions by the Project Inspector, District Representative or the Architect, laws, ordinances, or any public authority having jurisdiction require work to be inspected, tested or approved before the work proceeds, such work shall not proceed, nor shall it be covered up without inspection. If any part of the Work is covered prior to inspection, the District may order the work to be uncovered so that inspection may be accomplished. The Contractor shall bear all expenses of such examination and satisfactory reconstruction.

The Contractor shall provide written notice to the Project Inspector at least twenty-four (24) hours in advance of the readiness for inspection.

All work shall be available for inspection and the Project Inspector shall have full access to review all work during all working times. The Contractor shall provide all necessary means of safe access (e.g. ladders) for the Project Inspector to perform his/her duties. The Contractor shall furnish the Project Inspector with any information necessary to fully inform him/her of conditions. Inspection does not relieve the Contractor from fulfilling the requirements of the Contract Documents.

Section 9.05. Inspection of Completed Work.
Should the District Representative or the Architect determine that it is necessary or advisable to make an inspection of work already completed at any time before final inspection and acceptance of the Work, by removing or exposing any work, the Contractor shall, upon instruction of the District Representative, promptly furnish all necessary facilities, labor, and materials to do so. If the work is found to be defective in any respect due to the fault of the Contractor or any subcontractor, the Contractor shall bear all expenses of such examination and satisfactory

reconstruction. If, however, the work is found to meet the requirements of the Contract Documents, the additional cost of labor and material necessarily involved in the examination and replacement shall be allowed the Contractor and a change order shall be issued for such cost and any time extension justified by delays to the critical path.

Section 9.06. DSA Field Representative.
For contracts requiring DSA approval, the Division of the State Architect will designate a field representative who will visit the Site periodically to review with the Project Inspector compliance of the Project with CCR Title 24 requirements. The DSA field representative may require certain modifications to the Project as constructed. In the event the Contractor believes they are outside the scope of this Contract, it shall proceed as in Section 5.06.

Section 9.07. Overtime work.
Whenever the Contractor arranges to work at night or any time when work is conducted other than the normal 40-hour week, or to vary the period during which work is carried on each day, it shall give the District Representative and the Project Inspector a minimum of 48-hours notice so that inspection may be provided. Additional inspection costs incurred because of overtime or shift work shall be paid by the District. If this overtime work is necessitated by the Contractor's error or failure to perform, the cost of inspection will be borne by the Contractor.

Section 9.08. Materials Which May be Tested.
The District reserves the right to require the Contractor to provide samples, and to perform tests on any materials, articles, equipment, installations, or construction performed by the Contractor in addition to those specified in the Contract Documents. The District shall assume the cost of sampling and testing materials only when the Contract Documents do not require the Contractor to do so.

Section 9.09. Testing.
All tests shall be performed under the supervision of the testing laboratory or consultant employed by the District, and listed on the DSA-approved list, and at such times as are convenient to the District. The Contractor shall provide written notice to the District Representative at least 24 hours prior to the need for off-site tests or inspections, and the District Representative will arrange such tests or inspections. The Contractor shall bear all expenses of tests performed where the Contractor failed to provide this minimum notice.

Section 9.10. Selection of Samples.
All samples and specimens for testing shall be selected by the Project Inspector or by the testing laboratory, but not by the Contractor.

Section 9.11. Delivery of Samples.
The Contractor shall, at the Contractor's sole cost and expense, furnish, package, mark, and deliver all samples to be tested at locations other than the Site. Samples shall be delivered either to the Project Inspector or to the testing laboratory or such other address specified in the Contract Documents.

Delivery of all samples to the testing laboratory shall be made in ample time to allow the test to be made without delaying construction. No extra time will be allowed for the completion of the Work by reason of delay in testing samples required by the Contract Documents or due to the Contractor's request for substitution.

The Contractor shall allow free access at all times to the representatives of the testing laboratory to the Work, and shall point out the sources from which samples are taken.

All test reports shall be sent to all parties specified in the Contract Documents.

Section 9.12. Approval of Samples.
No materials or work of which samples and/or tests are required shall be used or covered until the District Representative or the Project Inspector informs the Contractor that such samples and/or tests have been approved. If the Contractor installs, uses, or covers any such material, article, or work prior to testing and approval, such shall be at the Contractor's sole risk and expense, and it shall bear all costs of uncovering, repair, and replacement thereof.

The approval of any samples shall be for the characteristics thereof, or for the uses named in such approval, and no other. No approval of any samples shall be deemed a change or modification in any requirement of the Contract

Documents. Upon testing of any sample of material or work, no additional sample shall be considered. All material or work installed after the sampling and testing is performed and approved shall be equal to or better than the approved sample in all respects and shall be accompanied by documentary proof that the material and work sampled is actually representative of that installed.

Section 9.13. Damage Due to Testing.
The Contractor shall, at its sole cost and expense, repair all damage resulting from testing specified in the Contract Documents. The District shall issue a Change Order for repair of damage due to sampling or testing other than specified in the Contract Documents.

The Contractor shall not make any tests upon portions of the Project already completed, except with the prior written consent and under the direction and supervision of the District Representative.

Section 9.14. Retesting.
If as a result of any test, whether originally specified or not, any material or work is found to be unacceptable, it shall be rejected, and all further sampling and testing required by the District or District Representative shall be at the Contractor's expense.

Section 9.15. Effect of Sampling and Testing.
The District assumes no obligation, and the Contractor shall be relieved of no obligation undertaken pursuant to the Contract Documents by virtue of sampling and testing specified in this article.

The responsibility for incorporating satisfactory materials and workmanship which meet the Contract Documents in the work rest entirely with the Contractor, notwithstanding any prior samples or tests.

ARTICLE 10. PROTECTION OF WORKERS, PUBLIC AND PROPERTY

Section 10.01. Safety Precautions and Programs.
The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work, for maintaining all safety and health conditions on the Site and for ensuring against and/or correcting any hazardous conditions on the Site. Also, in no case shall the District, the District Representative, the Architect, the Inspector, or their agents, employees or representatives, have either direct or indirect responsibility for the means, methods, techniques, sequences or procedures utilized by the Contractor, or for safety precautions and programs in connection with the Work, or for maintaining any safety or health conditions on the Site, or for ensuring against or correcting any hazardous conditions on the Site.

Certain work may be ongoing at the time school is in session; therefore, the Contractor shall take precautions to prevent injury and access to children and staff and shall comply with the District's Guidelines for Onsite Safety. Material storage and vehicle access and parking shall be subject to District approval.

The Contractor shall designate a responsible member of its organization at the Site whose duty shall be the prevention of accidents and overall jobsite safety for contractors/subcontractors employees and visitors. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the District Representative.

Section 10.02. Protection of Persons and Property.
The Contractor shall at all times, until final acceptance and payment hereunder, maintain adequate protection against injury to persons, including employees, or damage to property, on or near the Project, or adjacent to the Site. The Contractor shall be responsible for maintaining all safety and health conditions on the Site and for ensuring against and/or correcting any hazardous conditions on the Site. In no case shall the District, the District Representative, the Architect, the Inspector or their agents, employees or representatives, have either direct or indirect responsibility for maintaining any safety or health conditions, or for ensuring against or correcting any hazardous conditions, on or near the Site, or adjacent to the Site.

The Contractor shall provide a safe environment for all functions to be performed by the District Representative, Architect and Project Inspector, and a safe place for all employees to work. The use of alcohol, drugs, or tobacco will not be permitted on District property.

The Contractor shall comply with all Occupational Safety laws, rules and regulations applicable to the work.

Section 10.03. Protection and Repair of Work.
The Contractor shall protect the District's structures, facilities, equipment, tools, materials, and any other property on or adjacent to the Site against damage, loss, or theft by providing adequate security measures for its work. The Contractor shall, until final payment hereunder, maintain protection of all of its work and work performed by others under this Contract from damage, loss, defacement, or vandalism. The Contractor shall provide protection of completed work which may be subject to damage as a result of the Contractor's failure to perform as scheduled.

The Contractor shall repair or replace any damage and remove any damaged or defaced material and/or equipment from the Site at no cost to the District, and Article 17 shall apply to such material or equipment.

Section 10.04. Protection of Workers.
The Contractor shall take every precaution for the safety of all employees and others on the Work, and to comply with all applicable provisions of federal, state and local safety laws and building codes to prevent accidents or injury to persons on, about, or adjacent to the premises where the Work is being performed.

The Contractor shall erect and properly maintain at all times, as required by the conditions and progress of the Work, all necessary safeguards for the protection of workers and the public, and shall post danger signs warning against hazards created by construction including, but not limited to, protruding nails or reinforcing steel, hod hoists, elevator hatchways, scaffolding, window openings, stairways, and falling materials.

The Contractor shall immediately replace or repair any unsafe ladder, scaffolding, shoring, or bracing, or correct any other dangerous or hazardous situation that may exist.

The responsibility for maintaining a safe working site shall be the Contractor's, and the District and District Representative undertake no obligation to suspend the work or notify the Contractor of any hazardous conditions or noncompliance with safety laws. See hazardous materials exhibit for further information.

In no case shall the District, the District Representative, the Architect, the Inspector, or their agents, employees or representatives, have either direct or indirect responsibility for maintaining any safety or health conditions, or for ensuring against or correcting any hazardous conditions on the Site.

Section 10.05. Working Limits and Regulations.
The Contractor shall confine its apparatus, storage and materials, and construction operations within the limits established by the District Representative, and shall not unreasonably encumber the Site or adjacent areas with its materials and/or equipment.

The Contractor shall enforce any instructions from the District Representative or District regarding fires, placement of signs, danger signals, barricades, radios, noise and smoking.

Section 10.06. Protection of Existing Improvements.
The Contractor shall clean the portions of existing improvements and facilities which are used by, traversed or dirtied by the workers on the Work, normal maintenance due to use by District employees or the public excepted.

The Contractor shall take all necessary precautions to protect all existing improvements and facilities from any damage resulting from the operations, equipment or workers of the Contractor during the course of the construction, and Contractor shall be strictly liable for failure to adequately protect any existing improvements and/or facilities.

The Contractor shall take all necessary precautions to protect existing facilities against the effects of the elements and Contractor shall be strictly liable for failure to adequately protect any facility.

All damaged improvements and facilities shall be replaced, repaired, and restored to their original condition without additional cost to the District and without an extension of the Contract Time.

Section 10.07. Traffic Signals and Traffic Control.
Existing signs, lights, traffic signals, control boxes, hydrants, meters, and other similar items occurring within the street or sidewalk areas shall be kept free of obstructions and accessible at all times. All such items shall be protected from the Contractor's operations and shall not be obliterated or obscured by its equipment or materials.

Should it be necessary to cover up, move, or alter such items, this shall be done only with permission of the authorities having jurisdiction over the items involved.

Should it be necessary to block a street or sidewalk, the Contractor shall first notify the District Representative and the police and fire departments and other agencies with jurisdiction, and shall comply with their instructions, including scheduling limitations.

Section 10.08. Security of the Site.
The Contractor's attention is directed to Specifications Section 01500 regarding requirements for fencing the Site, gates, and screening.

Section 10.09. Removal of Barricades.
Upon completion of the work, the Contractor shall remove from the Site all materials used for barricades, temporary scaffolding, or any other temporary uses.

Section 10.10. Protection of Adjacent Property; Notices.
In addition to any requirements imposed by law, the Contractor shall shore up, brace, underpin, and protect as may be necessary all foundations and other parts of all existing structures on the Site or adjacent to the Site which are in any way affected by the excavations or other operations connected with the completion of the Work.

Prior to excavation, the Contractor shall notify all public utilities and governmental agencies of the work proposed, and shall ascertain from them the exact location of their utilities.

Prior to commencing any work which in any way affects adjoining or adjacent land or buildings thereon, or public utilities, the Contractor shall notify the District Representative, who will send the District and occupants thereof a notice, which specifies the type of work to be done, the schedule of the work, the impacts expected from the work and the protective measures being taken by the Contractor. The notice shall also specify that any person receiving notice who has questions regarding it may contact the District Representative.

Whenever any notice is required to be given to any adjoining or adjacent landowner, utility, governmental agency or other party before commencement of any work, the notice shall be given by the Contractor at least seven days in advance of the work, or longer if required by law or regulation, with a copy delivered to the District Representative.

The Contractor shall, at the written instruction of the District Representative, meet with any recipient of such notice to explain and discuss the proposed work.

Section 10.11. Fire Protection.
The Contractor shall take all steps necessary to protect all structures from fires and sparks originating from the Work, shall comply with all laws and regulations regarding fire protection, and shall comply with all instructions of the fire department with jurisdiction.

The Contractor shall notify the District Representative and the fire department in writing at least 72 hours prior to disconnection of either water or electrical service to the Site, and shall comply with the fire department's instructions regarding fire safety.

The Contractor must keep the fire and intrusion detection systems operational throughout the duration and scope of its work.

Section 10.12. Repairs or Replacement.
Any damage to existing conditions, or to any other improvement or property above or below the surface of the ground, whether private or public, arising from performance of this Contract shall be repaired within 48 hours by the Contractor without expense to the District, unless disruption of school operation or creation of a safety hazard has occurred, in which case damage will be corrected immediately.

If, in the opinion of the Architect, the best interest of the District requires that repairs be made prior to the execution of any further work, the District Representative will so notify the Contractor who shall delay or discontinue that part of the Work until the necessary repair has been made. Such delay shall be considered non-compensable, and no extension of the Contract Time will be granted therefore.

Upon the failure of the Contractor to comply with any such order, or upon the Contractor's failure to make immediate emergency repairs which are necessary to protect the Work, the District shall do that work itself as is necessary to protect life and property, in its sole discretion, and deduct the total cost of such work from the next progress payment. No prior notice to the Contractor shall be necessary for the District to take this action.

Section 10.13. Emergency Safety Actions.
In an emergency affecting the safety of life or property, including adjoining property, the Contractor, without previous instructions or authorizations from the District, is authorized and shall act at its discretion and risk to prevent such threatened loss or injury, and the Contractor shall bear all costs of that action. The Contractor shall immediately notify the District Representative of such actions, and thereafter shall comply with any instructions issued by the District Representative.

ARTICLE 11. SUBMITTALS

Section 11.01. Submittals.
The Contractor, at its sole cost and expense, shall furnish to the District Representative all Submittals and other descriptive material as are required by the Specifications or requested by the Architect.

Shop drawings shall be done with sufficient detail to adequately describe items proposed to be furnished or methods of installation to enable the District and Architect to determine compliance with the Specifications and with the design and arrangement shown on the working drawings.

The Contractor shall check and coordinate all Submittals with the work of all trades involved before they are submitted. The Contractor shall review each Submittal for conformance with the requirements of the Contract Documents.

All Submittals for the Project shall be made within thirty-five (35) days of the Notice of Intent to Award; however, the Contractor shall have the additional responsibility to coordinate the schedule of its Submittals with the requirements of the Contract Schedule so as not to delay the Project. No delay claims related to Submittals will be entertained on the Project for any Submittal originally received after the thirty-five (35) day submittal period. The District shall not accept limitations in materials, colors, quality, or any other aspect of products or materials due to the Contractor's failure to provide Submittals as required. At the District's discretion, the Contractor may be directed to furnish and install temporary materials until the District selected material is available. Further, the District may require the Contractor to install the District selected materials during non-school hours/days without an increase in the Contract Sum and without an extension of the Contract Time.

Contractor shall submit a schedule of Submittals organized by Specification section required for the Project. It shall delineate whether product data, installation instructions, shop drawings, samples, extra stock or mock-ups are required. The schedule of Submittals shall indicate whether the Submittal will be in electronic format, as set forth below. In general, other than items requiring color selections, samples and shop drawings, Submittals will be in electronic format. This schedule of Submittals shall be submitted using the approved Constructware Excel Template within ten (10) calendar days of the issuance of the Notice of Intent to Award. Any omissions or inaccuracies shall not relieve the Contractor of the obligation for conforming to the requirements in the Contract Documents. The Contractor's Submittal schedule shall provide sufficient time for delivering the Submittal to the Architect, the Architect's review of each Submittal, delivering the Submittal to the Contractor and re-submittal as necessary. In no case shall the Contractor allow fewer than fourteen (14) days, exclusive of delivery time, for the District Representative and the Architect to review each Submittal.

Section 11.02. Submission of Submittals.
Most Submittals shall be submitted electronically. Electronic Submittals which are submitted together shall be compiled into a single, bookmarked PDF file, containing links to enable navigation to each item within the Submittal package. The Contractor shall name the electronic Submittal file with a consistent project identifier, composed of the project name, bid package number, and specification section number. Electronic Submittals shall be transmitted via the District Representative's Collaboration Site address,. Submittals shall be submitted The District Representative will not review the Submittals for technical compliance, but may reject any Submittal found, in the District Representative's judgment, to be incomplete. The District Representative will maintain a Submittal log, and weekly meeting minutes shall note if Submittals have been accepted. Submittals requiring color selections, samples, or shop drawings will be logged into Constructware.

For shop drawings, color selections and samples, the Contractor shall submit no less than three (3) originals. All Submittals of shop drawings, color selections and samples shall be marked with the project name, the Contractor's name, and the specification section number, and shall be accompanied by a letter of transmittal to the District Representative. The letter of transmittal for shop drawings shall list the identifying number of the drawings submitted and cross-reference them to the page or sheet in the specifications and/or working drawings to which they are related.

By approving and submitting shop drawings, product data, manufacturers' instructions, and samples, the Contractor represents that it has determined and verified all materials, field measurements and field construction criteria related thereto and that it has checked and coordinated the information contained within those Submittals with the

requirements of the Work and to the Contract Documents. The Contractor shall adhere to any supplementary processing and scheduling instructions pertaining to Submittals as may be issued by the District Representative.

The District Representative will not accept shop drawings, product data or manufacturers' instructions which are not sufficiently dimensioned and detailed to demonstrate compliance with the Contract Documents.

The Submittals shall be submitted promptly, so as to cause no delay in the work. The Submittals shall be submitted so as to allow the District Representative and the Architect a review period of no less than fourteen (14) days, and in accordance with the schedule of Submittals provided by the Contractor.

Section 11.03. Review of Submittals.
Following submission, the Submittals will be reviewed and returned with one or more of five possible responses by the District Representative or Architect. These possible responses are as follows:

A. Unreviewed: If the Submittal is not required, or if it is not complete, or if it does not meet the form, format, and number requirements specified, it may be returned unreviewed. If the Submittal is not required, work may commence; if the Submittal was returned due to form requirements, it shall be resubmitted and approval obtained prior to commencement of the work.

B. Approved, Reviewed, or No exceptions taken: In the event the Submittal is acceptable as submitted, it will be returned with this status. Work may proceed upon receipt of approved Submittal.

C. Make Corrections Noted: If the Submittal is acceptable except for certain items which have been noted by the Architect, it will be so designated. Work may proceed with the corrections made, and no resubmittal is necessary.

D. Revise and Resubmit: This status indicates that revisions are noted on the Submittal, and an additional Submittal is required to reflect those revisions and/or additional information. Work may not commence until the resubmittal is approved.

E. Rejected: A Submittal may be rejected if it is not in compliance with the Contract Documents, or if it proposes an "or equal" or substitution which is not acceptable to the Architect. A superseding Submittal shall be submitted and approved prior to commencement of the work.

Should the Contractor proceed with the work shown on a Submittal before approval is received, it shall remove and replace or adjust any work which is not in accordance with the Submittal as ultimately approved, and it shall be responsible for any resultant damage, defect, or added cost. The District shall be under no obligation to pay for work installed prior to approval of Submittals, until the Submittals are approved and the work in place is found to be in compliance with the Contract Documents.

The Contractor shall resubmit Submittals in categories "D" and "E" above after making any changes required so that Submittals will comply with the Contract Documents. When resubmitting, the Contractor shall direct specific attention to deficient areas. Resubmittals shall be made within ten (10) days of return of the previous Submittal, and in any event in sufficient time so as to avoid delay to the Work. No delay claims related to resubmittals will be entertained on the Project for any resubmittal originally received after the ten (10) days.

The Architect shall determine the adequacy and completeness of all Submittals. Where the Architect deems a Submittal to be inadequate, incomplete, or otherwise unsuitable for proper review, the Contractor shall submit all additional information requested by the Architect. There shall be no change to the Contract Time or the Contract Sum when such additional information is required.

Section 11.04. Submittals Showing Variation from Contract.
It shall be the responsibility of the Contractor to specifically point out any variation or discrepancy between the Submittals submitted and the Contract Documents.

The Contractor shall make specific mention of all variations, along with an explanation of why they are requested, in its letter of transmittal.

Failure by the contractor to identify in its letter of transmittal any variation, discrepancy, or conflict with the contract documents shall render the approval null and void, and the contractor shall bear all risk of loss and reconstruction costs or delays.

If any architectural, plumbing, mechanical, electrical, or structural modifications are required as a result of the approval of Submittals which deviate from or do not comply with the Contract Documents, those modifications shall be made without extra cost to the District, and without extension of the Contract Time. Any other resultant costs, including but not limited to design fees, construction management fees, costs incurred by other contractors, or inspection fees, shall be at the expense of the Contractor.

Section 11.05. Effect of Approval of Submittals.
The approval of Submittals shall not relieve the Contractor of the obligation for accuracy of dimensions and details; for conforming the work to the requirements of the Contract Documents; or from responsibility to fulfill the Contract at no extra cost to the District, within the Contract Time.

Section 11.06. Equal Materials.
Unless otherwise provided in the technical specifications, whenever in the Contract Documents any systems, processes, products, or materials are indicated or specified by the name brand of the manufacturer, or by patent or proprietary names, those specifications shall be deemed to be a measure of quality and utility or a standard, and shall be deemed to be followed by the words, “or equal.” It is the intent of this article to comply with Public Contract Code Section 3400.

If the Contractor desires to use any other brand or manufacturer of equal quality and utility to that specified, it shall make application to the District Representative in writing, within ten (10) business days after Notice of Intent to Award, and shall submit samples and all other information necessary to substantiate its claim of “or equal”. Such application constitutes a certification that the Contractor:

A. Has investigated the proposed Equal and determined that it meets or exceeds, in all respects, the specified system, process, product, or material.

B. Will provide the same warranty for the proposed Equal as for the specified system, process, product or material.

C. Will coordinate installation and make other changes which may be required for work to be complete in all respects and at no additional cost to the District.

D. Waives claims for additional costs and/or Contract Time which may subsequently become apparent.

The Architect then will determine whether or not the proposed system, process, product or material is equal in quality and utility to that specified, and its decision shall be final. The Architect will render its decision within twenty one (21) business days after submission of all required information for the application. If the request is not accepted, the Contractor shall provide the specified system, process, product or material without an increase in the Contract Sum and/or Contract Time.

Neither the submission of a request for an Equal, nor the Architect’s review of the application, will extend the time for submission of any required Submittals.

Requests for Equal systems, process, products or materials will be considered only when offered by the Contractor as required by this article.

Section 11.07. Substitutions.
Unless otherwise provided in the technical specifications, the Contractor may make proposals for Substitutions to systems, process, products or materials shown or specified only under one or more of the following conditions:

A. Unavailability: If the specified system, process, product, or material, or an Equal, is no longer available in the marketplace.

B. Delay: If obtaining the specified system, product, process or material, or an Equal, will delay completion of the Work through no fault of the Contractor.

C. Better system, process, product or material: If a better system, product, process or material is available at no additional cost.

D. Savings: If a system, process, product or material which meets all of the performance requirements of that specified is available at a savings to the District.

A proposal for Substitution shall include all information required by the Architect to evaluate the substitute system, process, product or material. All Substitutions shall be submitted with an approved "Substitution Request Form". Reference the District's Standard Forms. Such proposal constitutes a certification that the Contractor:

A. Has investigated the proposed Substitution and determined that it meets or exceeds the performance requirements of the specified system, process product or material.

B. Will provide the same or better warranty for the proposed Substitution as for specified system, process, product or material.

C. Will coordinate installation and make other changes which may be required for the work to be complete in all respects at no additional cost to the District.

D. Waives claims for additional costs and/or Contract Time, which may subsequently become apparent.

The District Representative and the Architect shall evaluate a timely Substitution request, and shall approve, deny, approve with conditions, or initiate the procedure for a change order in response to the Contractor's request. This decision shall be final. This decision will be rendered within twenty one (21) business days after submission of all required information for the proposal. If the request is not accepted, the Contractor shall provide the specified system, process, product or material without an increase in the Contract Sum and/or Contract Time.

Failure by the Contractor to identify all deviations from the Contract Documents in its request for substitution shall render any District action taken thereon null and void. The Contractor shall bear all costs resulting from any error in the request for Substitution.

Only one request for Substitution will be considered for each product.

Substitutions may be subject to DSA approval, in which case the time to review will be extended by the duration of the DSA approval process.

Neither the submission of a request for substituted systems, processes, products or materials, nor the District Representative's and/or Architect's review of the application, will extend the time for submission of any required Submittals.

Section 11.08. Time for Proposing Substitution.
Substitution proposals will not be considered prior to bidding. All requests for Substitutions shall be made within the same time requirement for initial submittals. Failure to timely submit a Substitution request shall constitute a waiver by the Contractor and an acceptance of the specified systems, processes, products and materials. Late submittals may be considered only when the District Representative consents in writing, and the District's best interests so require.

Section 11.09. Samples and Testing of Proposed Substitutions; Costs of Adapting to Work.
When the District Representative or Architect determines that samples and testing are required to evaluate a request for a Substitution, the District Representative shall so advise the Contractor, and specify the systems, processes, products, materials or work to be sampled. The Contractor shall, at no cost to the District, provide samples as required by these General Conditions dealing with samples and testing, or the Technical Specifications.

The Contractor shall bear all costs of sampling and testing required to decide a request for Substitution, and if a Substitution is accepted, the Contractor shall bear all costs associated therewith, including the cost of the District Representative's, Architect's and/or engineer's services required to adapt the Substitution to the design to the complete satisfaction of the District, and all costs of mechanical, electrical, structural, or other changes needed to adapt the Substitution to the Work.

Section 11.10. Effect of Approval of Equal Materials or Substitution Request.
If an application for an Equal or Substitution request is approved, the Contractor shall be solely and directly responsible for setting approved Equal or Substitution systems, processes, products, materials and/or equipment into the available space, and for the proper operation of the Equal or Substitution systems, process, products, materials and/or equipment with all other systems, processes, products, materials and/or equipment with which it may be associated, all in a manner acceptable to the District.

No time extensions nor any increases in the Contract Sum shall be granted on account of an Equal or Substitution. In the event of a savings, the Contract Sum shall be adjusted by the price difference between the approved Equal or Substitution and the originally specified item.

Section 11.11. Quality of Materials and Products.
The Contractor shall, if required by the Architect, Project Inspector, or District Representative, furnish satisfactory evidence as to the kind and quality of materials provided.

The District Representative may require, and the Contractor shall submit if required, a list designating the source of supply of each item of materials incorporated into the Work, and in such event, those materials or products shall not be delivered to the Work nor installed therein until after the District Representative has approved the list.

Contractor shall certify that the materials and equipment installed comply with the Contract Documents and to the best of the Contractor's knowledge, no installed materials or equipment contain asbestos.

Section 11.12. Better Material or Process.
In the event that the Contractor furnishes a material, product, process, or article better than that specified in the Contract Documents, the difference in cost of that material, product, process, or article shall be borne by the Contractor.

Section 11.13. Industry Standards.

A. Any material specified by reference to the number, symbol, or title of a specified standard such as a Commercial Standard, a Federal Specification, a Trade Association Standard, or other similar standard, shall comply with the requirements in the latest revision thereof, including any amendments or supplements thereto, in effect on the date of the Bid, except as limited to type, class, or grade, or modified in that reference.

B. The standard referred to, except as modified in the specifications, shall have full force and effect as though printed in these specifications. These standards are not furnished to the bidder for the reason that the manufacturers and trades involved are assumed to be familiar with their requirements.

    1. Where Federal Specifications are referred to as a measure of quality and standard, they refer to Federal Specifications established by the Procurement Division of the United States Government and are available from the Superintendent of Documents, U.S. Government Printing Office.

    2. Where Federal Specification numbers are used, they refer to the latest edition including amendments thereto.

    3. Where Commercial Standards (CS) or Product Standards (PS) are referred to as a measure of quality, standard, and method of fabrication, they refer to Commercial Standards and Product Standards issued by the U.S. Department of Commerce.

4. Where ASTM serial numbers are used, they refer to the latest tentative specifications, standard specifications, standard method or standard methods of testing, issued by the American Society for Testing Materials, unless specifically noted.

Section 11.14. Materials and Products Storage.
The Contractor shall confine the storage of all materials, products, and equipment required in the performance of this contract to the areas specified by the District. The Contractor shall obtain prior approval from the District Representative regarding areas for storage and methods of protection. All material, products, and equipment shall be brought and used upon the premises in such manner as to leave driveways and parking areas clear for the regular use of the public and District employees.

Section 11.15. Original Packages or Containers; Labels.
All materials delivered to the Site shall be new, unless otherwise specified, of the type, capacity, and quality specified, and free from defects. All materials shall remain in their original packages or containers until ready for use. The labels of all packages or containers shall remain affixed, and kept legible. No product shall be stored in any container, the label of which does not accurately describe the contents of the container.

Section 11.16. Protection of Materials and Equipment.
The Contractor shall protect the work, materials, and equipment from damage due to the action of the elements, trespassers, or other causes. The Contractor shall properly store materials and equipment and, when necessary, erect temporary structures to protect them from damage. The Contractor shall replace any items damaged as a result of improper protection at no expense to the District.

Section 11.17. Providing and Paying for Materials.
Except as otherwise specifically stated in the Contract Documents, the Contractor shall provide and pay for all materials, products, articles, processes, labor, tools, equipment, and installation, and all associated superintendence of every nature whatsoever necessary to execute and complete the Work within the Contract Time.

Section 11.18. Warranty of Title.
No material, article, product, supplies, or equipment for the Work shall be subject to any chattel mortgage, or a conditional sale or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier.

The Contractor warrants good and sufficient title to all material, supplies, and equipment installed or incorporated in the Work, and agrees upon completion of the Work to deliver the premises, together with all improvements and appurtenances, constructed or placed thereon by the Contractor, to District, free from any claims, liens, or charges.

The Contractor agrees that neither it nor any person, firm, or corporation furnishing any materials or labor for any work covered by this Contract shall have any right to a lien upon the premises or any improvement or appurtenances thereon; provided, however, that nothing contained in this Section shall defeat or impair the rights of persons furnishing materials or labor under the payment bond given by the Contractor, nor any rights under any law permitting such persons to look to funds due to the Contractor but retained by District.

The Contractor shall cause the provisions of this Section to be inserted in all subcontracts and material contracts executed by the Contractor and notice of this provision shall be given to all persons furnishing materials for the Work.

This Section shall not disallow the Contractor's installing any devices or equipment of utility companies or of governmental agencies, the title to which is commonly retained by the utility company or the agency.

Section 11.19. Patents and Royalties.
All fees, claims, or royalties for any patented or copyrighted invention, article, arrangement, or plan that may be used upon or in any manner connected with the doing of the work or any part thereof shall be included in the price bid for doing the work. The Contractor and its sureties shall protect, defend, indemnify and hold harmless the District, District Representative, the Project Inspector, the Architect and its consultants, and each of their respective officers, agents, and employees against any and all demands made for such fees or claims and against any and all suits,

demands, claims or causes of action brought or made by the holder of any invention, patent, copyright, or trademark, or arising from any alleged infringement of any invention, patent, copyright, or trademark.

Before final payment is made on account of this Contract, the Contractor shall furnish acceptable proof to District of proper release from all such fees or claims.

Section 11.20. Payment of Federal or State Taxes.
Any federal, state or local tax, specifically including sales and use taxes, payable on materials furnished by the Contractor pursuant to the Contract, shall be included in the Contract Sum and paid by the Contractor.

ARTICLE 12. PROGRESS PAYMENTS

Section 12.01. Schedule of Values.

As part of required post bid submittals, and at least fourteen (14) days prior to the first payment application, the Contractor shall submit to the District Representative a schedule of values broken down by phase, and within each phase by building, in sufficient detail to evaluate progress at any point in the Work. In no event shall an individual line item on a schedule of values exceed five (5) percent of the Contract Sum unless so approved in advance by the District Representative. Costs shall be segregated by phase, and within each phase by building. Labor, material, and subcontract costs shall be shown separately. Cost of Contract closeout shall be shown as individual line items, including, but not limited to, closeout documents, punchlist, and as-built documentation. Each of these line items shall be no less than three (3) percent of the total Contract Sum.

All other General Conditions items should be prorated among the actual construction values. The schedule of values must be prepared in sufficient detail and supported by such data to substantiate its accuracy as the District Representative and the District may require. This schedule, when approved, shall be used as a basis for the Contractor's applications for payment, and the approved schedule of values is an express condition precedent to processing the Contractor's payment application(s).

Section 12.02. Application for Payment.

A. Prior to the date for each progress payment review established in the Preconstruction Meeting, the Contractor shall submit to the District Representative a copy of the schedule of values, marked in pencil to show the percentage of completion proposed by the Contractor for each line item. No extension of dollar amounts is required.

B. At a meeting held on or before the assigned billing date of each month, the District Representative, Architect, Project Inspector, and the Contractor will review the Contractor's proposed percentages of completion and agree on a final percentage to be paid for that month. The progress payment will be based on the estimated percentage complete. No progress payment will be made unless all general conditions items demonstrate satisfactory progress. Upon agreement of the amount due, the Contractor will prepare a hard copy of the Application of Payment Summary and transmit it to the District Representative for processing by the assigned day of each month.

C. Release of Liens: For each monthly application for payment, following agreement on percentages of completion, the Contractor shall submit a conditional lien release in the form provided in the Contract Documents warranting that title to all work, labor, materials and equipment covered by the application is free and clear of all liens, claims, security interests or encumbrances. Additionally, the Contractor shall submit unconditional lien releases for all work through the prior progress payment. For final payment, the Contractor and all of its Subcontractors and material suppliers shall submit final conditional and final unconditional lien releases.

   Contractor shall submit a list of all Subcontractors and material suppliers including company name, address, business and emergency telephone numbers, and contact person. This Subcontractor and material supplier list shall be submitted prior to the issuance of the Notice to Proceed.

D. The signing of a certificate of payment will constitute a representation by the District Representative, Project Inspector and the Architect to the District that, based on their observations at the Site, and the data comprising the application for payment, the Work has progressed to the point indicated and that, to the best of their knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents (subject to any specific qualifications stated in the certificate for payment); and that the contractors are entitled to payment in the amount certified. However, by signing a certificate for payment, the District Representative and the Architect shall not thereby be deemed to represent that either has made exhaustive or continuous on-site inspections to check the quality or quantity of the work, that either has reviewed the construction means, methods, techniques, sequences or procedures, or that either has made an examination to ascertain how or for what purpose the contractors have used the monies previously paid on account of the Contract Sum.

E. No progress payment will be released until District Representative has received all of the following items in acceptable form: as-built updates, schedule updates, certified payroll and other pay records if requested by the District, and lien releases.

Section 12.03. Payment for Stored Materials.
Payments may be made by the District, at its discretion, on account of materials or equipment not incorporated in the Work but delivered to the Site and suitably stored by the Contractor. Payments for materials or equipment stored shall only be considered upon submission by the Contractor of satisfactory evidence demonstrating that it has acquired title to such material, that the material will be used in the Work, that it is satisfactorily stored, protected and insured, and that the Contractor has undertaken such other procedures satisfactory to the District Representative, Project Inspector, and Architect, to protect the District's interests. Materials stored off-site, to be considered for payment, shall, in addition to the above requirements, be stored in a bonded warehouse, fully insured, and available to the Architect and District Representative for inspection. The District Representative shall have complete discretion as to the amount of material and equipment that may be stored on the Site at any given time.

Section 12.04. Payment; Retention.
There shall be reserved from the monies earned by the Contractor on estimates a sum equal to five percent of such estimates. It is understood that, if payment requests are made in accordance with established time schedule, payment requests received and approved by District will be processed within thirty (30) days following approval. Payment for Change Orders, if any, under this Contract shall be made in like manner.

Section 12.05. Posting Securities in Lieu of Withholds.
Pursuant to Public Contract Code Section 22300, at the request and expense of the Contractor, securities equivalent to the amount withheld pursuant to Section 12.04 shall be deposited with the District, State Treasurer or with a state or federally chartered bank in California as the escrow agent, who shall then pay the retainage to the Contractor. Upon satisfactory completion of the Contract, the securities shall be returned to the Contractor.

Alternatively the Contractor may request, pursuant to Public Contract Code Section 22300, and the District shall make payment of retentions under Section 12.04 directly to the escrow agent. The Contractor shall receive the interest earned on the investments upon the same terms provided for in Section 22300 for securities deposited by the Contractor. Upon satisfactory completion of the Contract, the Contractor shall receive from the escrow agent all securities, interest and payments received by the escrow agent from the District.

Either alternative under this Section may be exercised only if requested in writing by the Contractor within five (5) days after receipt of Notice of Intent to Award. The Contractor shall notify its Subcontractors in writing within fifteen (15) days of exercising this option.

Securities eligible for investment under this Section shall include those listed in Government Code Section 16430 or bank or savings and loan certificates of deposit, interest-bearing demand deposit accounts, stand-by letters of credit, or any other security mutually agreed to by the Contractor and the District.

The Contractor shall be the beneficial owner of any securities substituted for monies withheld and shall receive any interest thereon.

Section 12.06. Withholding Additional Amounts; Grounds.
In addition to the amounts which the District may retain as provided in Section 12.04, the District may withhold a sufficient amount from any payment or payments otherwise due to the Contractor as in the District's sole discretion may be necessary to protect the District in the event of the following:

A. Third party claims filed or reasonable evidence indicating probable filing of such claims;

B. Defective work not remedied;

C. Failure of the Contractor to make proper payments to any of its Subcontractors or for labor, materials or equipment;

D. The occurrence of reasonable doubt that the Contract can be completed for the balance of payments then unpaid to the Contractor, or in the time remaining until expiration of the Contract Time;

E. Failure of the Contractor to comply with any lawful or proper direction concerning the Work given by any District representative authorized to have given such instruction;

F. Claims and/or penalties which state law assesses against the Contractor for violation of such law;

G. Any claim or penalty asserted against the District by virtue of the Contractor's failure to comply with the provisions of all governing laws, ordinances, regulations, rules, and orders;

H. Any liquidated damages which may accrue as a result of the Contractor's progress failing to meet the schedule milestones or failing to achieve completion within the Contract Time.

I. Any reason specified elsewhere in the Contract Documents as grounds for a retention or that would legally entitle the District to a set-off.

In order to adequately protect the District, the Contractor agrees that the basic standard to determine the amount to be withheld pursuant to this Section shall be one hundred fifty percent (150%) of the amounts claimed or the value of the work not done or defectively done; provided, however, that District reserves the authority to retain greater sums should such sums be necessary in the District's discretion to adequately protect it.

Section 12.07. Disbursement of Withheld Amounts.
The District, in its sole discretion, may apply any withheld amount or amounts to the payment of any claim resulting in a withhold. The Contractor agrees and hereby designates the District as its agent for such purposes, and any payment so made by the District shall be considered as a payment made under this Contract by the District to the Contractor. The District shall not be liable to the Contractor for any payments made in good faith. Such payments may be made without a prior judicial determination of the claim or claims. The District shall render to the Contractor a proper accounting of any funds disbursed on behalf of the Contractor.

Prior to disbursing any amounts, District shall afford the Contractor an opportunity to present good cause, if any it has, why the claim or claims in issue are not valid or just claims against the Contractor. The District reserves the right then to take such further steps as are appropriate, in its sole discretion, including, but not limited to, seeking a judicial resolution of the controversy.

Section 12.08. Correction of Statement and Withholding of Payment.
No inaccuracy or error in any statement provided by the Contractor shall operate to release the Contractor or any surety from the error, or from damages arising from such work, or from any obligation imposed by the Contract Documents. The District shall retain the right subsequently to correct any error made in any previously issued claim for the progress or other payment, or payment of any kind issued, by adjustments to subsequent payments.

Section 12.09. Effect of Progress Payments.
Neither the payment, the withholding, nor the retention of all or any portion of any progress payment claimed to be due and owing to the Contractor shall operate in any way to relieve the Contractor from its obligations under this agreement. The Contractor shall continue diligently to prosecute the Work without reference to the payment, withhold, or retention of any progress payment. The payment, withhold, or retention of any progress payment shall not be grounds for an extension of the Contract Time.

ARTICLE 13. TIME OF WORK

Section 13.01. Not applicable.

Section 13.02. Contract Schedule Development.
Within ten (10) days after receiving the Notice to Proceed, the Contractor shall submit a detailed proposed Contract Schedule presenting an orderly and realistic plan for completion of the Work, in conformance with the requirements of this Article. The proposed Contract Schedule shall be in hard copy and on a CD in electronic format other than pdf.

The Contract Schedule shall furnish or comply with the following requirements:

A. A time scaled CPM type schedule prepared in Microsoft Project software.

B. No activity on the schedule shall have a duration longer than fourteen (14) days, with the exception of fabrication and procurement activities, unless otherwise approved by the District Representative. Activity durations shall be the total number of actual days required to perform that activity including consideration of weather impact on completion of that activity.

C. Procurement of major equipment, through receipt and inspection at the job site, identified as a separate activity.

D. Owner furnished materials and equipment if any, identified as separate activities.

E. Dependencies (or relationships) between activities.

F. Processing/approval of submittals and shop drawings for major equipment. Activities that are dependent on submittal acceptance and/or material delivery shall not be scheduled to start earlier than the expected acceptance or delivery dates.

G. Separate buildings and other independent project elements shall be individually identified in the network.

H. Fourteen (14*)* days for developing punch list(s), completion of punch list items, and final clean up for the work or any designated portion thereof. No other activities shall be scheduled during this period.

I. Interface with the work of other Contractors (or entities).

The District Representative will review the proposed Contract Schedule for conformance with the requirements of the Contract. Within ten (10) days after receipt, the District Representative will accept the proposed Contract Schedule or will return it with comments. If the proposed Contract Schedule is not accepted, the Contractor shall revise the schedule to incorporate comments and resubmit the schedule for acceptance within seven (7) days after receiving it. The accepted schedule shall become the Contract Schedule.

The Contract Schedule shall be the basis for evaluating job progress, payment requests, and time extension requests. The responsibility for developing the Contract Schedule and monitoring actual progress as compared to the schedule rests with the Contractor.

Failure of the Contract Schedule to include any element of the work or any inaccuracy in the Contract Schedule will not relieve Contractor from responsibility for accomplishing all the Work in accordance with the Contract.

Acceptance of the Contract Schedule will not relieve the Contractor of the responsibility for accomplishing the Work in accordance with the Contract.

Failure to obtain the accepted Contract Schedule within forty (40) calendar days of the Notice to Proceed may result in the District withholding ten percent (10%) of each progress payment, or $1000, whichever is greater, until an accepted Contract Schedule is obtained.

Section 13.03. Monthly Updates.
Contractor shall submit to the District Representative each month an up-to-date status report of the Work. The status report shall be in hard copy and on a CD in electronic format other than pdf and shall include:

A. Contractor's estimated percentage complete and remaining duration for each activity not yet complete.

B. Actual start/finish dates for activities as appropriate.

C. Identification of processing errors, if any on the previous update reports.

D. Revisions, if any, to the assumed activity durations including revisions for weather impact for any activities due to the effect of the previous update on the schedule.

E. Identification of activities that are affected by requested or proposed changes to the Work.

F. Resolution of conflict between actual work progress and schedule logic. When out of sequence activities develop in the Contract Schedule because of actual construction progress, the Contractor shall submit revision to schedule logic to conform to current status and direction.

The District Representative will review the updated information and meet with Contractor each month at the Site to determine the status of the Work. If agreement cannot be reached on any issue, the Contractor will use the District Representative's determination in the processing of the update.

Progress payments pursuant to the Contract will be based on the update of the Contract Schedule. No progress payments will be made without the required monthly update of the Contract Schedule.

Section 13.04. Schedule Revisions.
If the sequence of construction differs significantly, as determined by the District Representative, from the Contract Schedule, Contractor shall submit within fifteen (15) days a revised schedule to the District Representative for approval.

When a requested or proposed change to the Work will have an impact on the critical path, the Contractor shall submit a schedule fragnet or Network Window showing this impact. If the requested or proposed change is accepted by the District, the schedule fragnet or Network Window shall be incorporated into the Contract Schedule. Time extensions will be considered only to the extent there is insufficient remaining float to accommodate these changes, and pursuant to Article 14 of these General Conditions. No additional cost beyond that provided in Article 15 will be allowed for the incorporation of approved changes into the Contract Schedule.

Should the Contractor, after acceptance of the Contract Schedule, intend to change its plan of construction, it shall submit its requested revisions to the District Representative, along with a written statement of the revision, including a description of the logic for rescheduling the work, methods of maintaining adherence to Intermediate milestones and other specific dates and the reasons for the revisions. If the requested changes are acceptable to the District Representative, they will be incorporated into the Contract Schedule in the next reporting period.

Schedule revisions shall be submitted at least seven (7) days prior to the date of submission of update information. The District will have seven (7) days to review the revisions.

Section 13.05. Short Interval Schedules.
Contractor shall prepare a Short Interval Schedule (SIS) to be used throughout the duration of Work. The SIS shall include all current activities and projected activities for the succeeding two (2) weeks. The SIS shall include actual start/finish dates for the preceding one (1) week. The SIS shall be submitted in hard copy and electronic PDF format to the District Representative prior to the weekly construction meeting. The Contractor shall participate in short interval scheduling coordination during the weekly construction meetings.

Section 13.06. Owner's Right to Revise Schedule.
In the event of a delay affecting the occupancy date of the Project and not the fault of the Contractor, the District Representative may elect to resequence work or otherwise modify the schedule in an attempt to maintain the Date of Completion. It shall be the responsibility of the Contractor to cooperate in this effort. It is not the District's responsibility to ensure the Contractor the ability to use "optimal" crew size throughout the Project and no adjustment of the Contract Sum will be made for minor variations in crew size or claimed loss of efficiency or disruption that result from schedule adjustments. However, overtime work or weekend work required by the District Representative to meet schedule objectives other than those of the individual contractor will be reimbursed per the provisions of Article 15, provided that Contractor has not contributed to the delay which the District Representative is seeking to overcome. If the Contractor contends that a schedule adjustment will cause a significant disruption of its work sequence or ability to perform work efficiently, it shall notify the District Representative within forty-eight (48) hours of receipt of the adjustment. Failure to provide timely notice constitutes a waiver by Contractor of any claim for compensation arising out of the schedule adjustment.

Section 13.07. Commencement of Work.
The Contractor shall commence procurement of long lead materials and equipment after receipt of Notice of Intent to Award and appropriate Submittals have been approved.

Section 13.08. Time of Essence.
Time is of the essence of this agreement. The Contractor shall, to the fullest extent possible, carry on the various classes or parts of the Work concurrently, and shall not defer construction of any portion of the Work in favor of any other portion of the Work, without the express approval of the District Representative.

Section 13.09. Date of Completion.
The Contractor shall fully and satisfactorily complete the Work within the Contract Time. The Date of Completion is defined in Article I.

Section 13.10. Responsibility for Completion.
The Contractor shall furnish sufficient manpower, materials, facilities and equipment and shall work sufficient hours, including night shifts, overtime operations, Sundays and holidays as may be necessary to insure the prosecution and completion of the Work in accordance with the Contract Time. If work on the critical path is seven (7) days or more behind the currently updated Contract Schedule and it becomes apparent that the Work will not be completed within the Contract Time, the Contractor will implement whatever steps it deems necessary to make up all lost time. If the Contractor's solution is not successful, it will make further attempts using the following sequence of events:

A. Reschedule activities to achieve maximum practical concurrence of accomplishment of activities.

B. If the above cannot be achieved then;

1. The Contractor shall increase manpower in such quantities and crafts as will substantially eliminate, in the judgment of the District Representative, the backlog of work; or increase the number of working hours, shifts per working day, working days per week or the amount of equipment or any combination of the foregoing sufficiently to substantially eliminate in the judgment of the District Representative the backlog of work.

2. In addition, the District Representative may require the Contractor to submit a recovery schedule demonstrating its program and proposed plan to make up a lag in scheduled progress and to ensure completion of the Work within the Contract Time. If the District Representative finds the proposed recovery schedule unacceptable, it may require the Contractor to submit a new plan. If the actions taken by the Contractor or the second plan proposed are unsatisfactory, the District Representative may require the Contractor to take any of the actions set forth in the previous paragraph without additional cost to the District to make up the lag in scheduled progress.

Failure of the Contractor to comply with the requirements of this Section 13.09 shall be considered grounds for a determination by the District, pursuant to Article 12, Section 12.06D, that the Contractor is failing to prosecute the Work with such diligence as will ensure its completion within the time specified.

Section 13.11. Payments Withheld.

Progress Payments may be withheld in whole or in part should the Contractor fail to comply with the requirements of this Article.

ARTICLE 14. DELAYS AND EXTENSIONS OF TIME

Section 14.01. Extensions of Time; Unavoidable Delays.
The Contractor shall not be granted an extension of time except on the issuance of a Change Order by the District, upon a finding of good cause for such extension.

A. As used herein, the following terms shall have the following meanings:

1. "Excusable Delay" means any delay in completion of the Work beyond the expiration of the Contract Time caused by conditions beyond the control and without the fault or negligence of the Contractor. These events may include strikes, embargoes, fire, unavoidable casualties, national emergency, and stormy and inclement weather conditions in which the District Representative and Project Inspector agree that work on the critical path cannot continue. The financial inability of the Contractor or any Subcontractor or supplier and any default of any Subcontractor, without limitation, shall not be deemed conditions beyond the Contractor's control. An Excusable Delay may entitle the Contractor to an extension of the Contract Time, in accordance with this Section of the general conditions, but shall not entitle the Contractor to any adjustment of the Contract Sum.

2. "Compensable Delay" means any delay in the completion of the Work beyond the expiration date of the Contract Time caused solely by the wrongful acts of the District and which delay is unreasonable under the circumstances and not within the contemplation of the parties. A Compensable Delay may entitle the Contractor to an extension of the Contract Time, in accordance with this Section of the General Conditions and/or an adjustment of the Contract Sum, in accordance with Article 15. Except as provided herein, the Contractor shall have no claim for damage or compensation for any delay, interruption, hindrance, or disruption.

3. "Inexcusable Delay" means any delay in completion of the Work beyond the expiration of the Contract Time resulting from causes other than those listed in Subparagraphs A1 and A2, above. An Inexcusable Delay will not entitle the Contractor to an extension of the Contract Time or an adjustment of the Contract Sum.

B. The Contractor may make a claim for an extension of the Contract Time, for an Excusable Delay or a Compensable Delay, subject to the following:

1. If an Excusable Delay and a Compensable Delay occur concurrently, the maximum extension of the Contract Time shall be the number of days from the commencement of the first delay to the cessation of the delay which ends last. Any adjustment of the Contract Sum shall be in accordance with Article 15 and shall be based only on the non-concurrent portion of any Compensable Delay.

2. If an Inexcusable Delay occurs concurrently with either an Excusable Delay and/or a Compensable Delay, the maximum extension of the Contract Time shall be the number of days, if any, by which the duration of the Excusable Delay and/or the Compensable Delay calculated in accordance with subparagraph B1, if applicable, exceeds the Inexcusable Delay. The duration of the concurrence is non-compensable.

Delays in the prosecution of parts or classes of the Work which do not prevent or delay the completion of the whole Work within the Contract Time are not to be considered Excusable or Compensable.

Section 14.02. Notice of Delays; Requests for Time Extensions.
Whenever the Contractor foresees any delay in the prosecution of the Work, and in any event immediately upon the occurrence of any delay which the Contractor regards as good cause for an extension, the Contractor shall notify the District Representative in writing of the delay. The notice shall specify with detail the cause asserted by the Contractor to constitute good cause for an extension together with a detailed schedule analysis showing the effect of the delay on the critical path of the Contract Schedule and a quantification of the length of the requested extension of time. Failure of the Contractor to submit such a notice within ten (10) days after the initial occurrence of the event giving rise to the delay shall constitute a waiver by the Contractor of any entitlement to a time extension, as well as to any associated additional compensation, and no extension shall be granted as a consequence of such delay.

The District shall have no obligation to consider any time extension request unless the requirements of the Contract Documents are complied with. The District shall not be responsible or liable to the Contractor for any constructive acceleration due to failure of the District to grant time extensions under the Contract Documents, should the Contractor fail to comply with the submission and justification requirements of the Contract Documents for time extension requests. The Contractor's failure to perform in accordance with the Contract Schedule shall not be excused because the Contractor has submitted time extension requests, unless and until such requests are approved by the District.

Section 14.03. Investigation; Procedure.
Upon receipt of a request for extension, the District Representative shall conduct an investigation of the facts asserted by the Contractor to constitute good cause for an extension. The District Representative shall report the results of this investigation, as well as the propriety of the time extension requested, to the Contractor in writing within ten (10) days of receipt of the request and shall indicate whether it will recommend for or against the extension.

Upon receiving the District Representative's recommendation, the Contractor may either concur in the recommendation, or reject the recommendation and proceed with a claim as provided for in Articles 21 and 23.

Section 14.04. Discretionary Time Extensions for Best Interest of District.
The District reserves the right to extend the time for completion of the Work if the District determines that such extension is in the best interest of the District. In the event that a discretionary extension is granted at the request of the Contractor, the District shall have the right to charge to the Contractor all or any part, as the District may deem proper, of the actual cost of construction management, engineering, inspection, supervision, incidental and other overhead expenses that accrue during the period of the extension, and to deduct all or any portion of that amount from the final payment for the Work.

In the event a discretionary time extension is ordered over the objection of the Contractor, and the decision rests solely with the District and is not legally compelled for any cause, the Contractor shall be entitled to a contract change pursuant to Article 15 adjusting the price paid to reflect the actual costs incurred by the Contractor as a direct result of the delay, upon its written application therefore, accompanied with such verification of costs as the District Representative requires. The decision of the District on any discretionary time extension and the costs thereof shall be final and binding on the District and the Contractor.

Section 14.05. Liquidated Damages.
If the Work is not completed by the Contractor in the time specified in Section 00 73 00, Special Provisions, or within any period of extension authorized pursuant to this Article, the Contractor acknowledges and admits that the District will suffer damage, and that it is impracticable and infeasible to fix the amount of actual damages. Therefore, it is agreed by and between the Contractor and the District that the Contractor shall pay to the District as fixed and liquidated damages, and not as a penalty, the sum specified in the Agreement for Construction for each calendar day of delay until the Date of Completion, and that both the Contractor and the Contractor's surety shall be liable for the total amount thereof, and that District may deduct Liquidated Damages from any monies due or that may become due to the Contractor. If it appears during the course of construction that the Contractor is behind schedule and the imposition of liquidated damages is likely, or if liquidated damages begin to accrue prior to the time for final payment, the amount accrued shall be withheld from any progress payment that would otherwise be due. This right to withhold funds is intended to complement the District's rights under Section 12.06.

This liquidated damages provision shall apply to all delays of any nature whatsoever, save and except only delays found to be excusable or compensable pursuant to Section 14.01, or time extensions granted by the District pursuant to Section 14.04.

Pursuant to Government Code Section 4215, the Contractor shall not pay fixed and liquidated damages for delay in completing the project caused by the failure of the District or the owner of utility facilities located on the Project Site to provide for removal or relocation of such facilities.

Payment by the District of any progress payments after expiration of the Contract Time shall not constitute a waiver by the District of its right to claim liquidated damages in accordance with this Section.

If the Contract is terminated before or after the Contract Time, as adjusted by any extensions of time that the District may have granted, pursuant to Section 18.07, the Contractor shall remain liable to the District for liquidated damages for all periods of time from such termination date until the Date of Completion.

Section 14.06. Extension of Time Not a Waiver.
Any extension of time granted the Contractor pursuant to this Article shall not constitute a waiver by the District of, nor a release of the Contractor from the Contractor's obligation to perform this Contract in the time specified by the agreement, as modified by the particular extension in question.

The District's decision to grant a time extension due to one circumstance set forth in one request, shall not be construed as a grant of an extension for any other circumstance or the same circumstance occurring at some other time, and shall not be viewed by the Contractor as a precedent for any other request for extension.

Section 14.07. Suspensions Exceeding One Year.
Should the Work be suspended for a period exceeding one calendar year due to war conditions, labor conditions, legal actions, or for other conditions constituting the legal defense of impossibility of performance, the Contractor and District agree to enter into an agreement terminating the agreement upon the following terms and conditions.

District shall be responsible only to pay the Contractor the actual value of the work performed from the Date of Commencement or from the date of the last progress payment, whichever is later, plus the five percent (5%) retention from prior progress payments, less any deductions authorized by the Contract Documents.

As between the Contractor and District, it shall be conclusively presumed that the actual value for the Contractor's work to the date of the last progress payment is no more than the actual amount of prior progress payment plus the five percent (5%) retention from those progress payments; provided, however, that this Section shall not preclude District from deducting charges for work or materials which do not meet the requirements of the Contract Documents.

Section 14.08. Effect of Stop Work Notice.
If the District orders a stop work notice pursuant to Article 9, the days on which the suspension is in effect shall be included in determining the required completion date, and shall not otherwise modify or extend the time within which the Contractor is to perform. In such event, the Contractor shall not be entitled to any damages or compensation on account of such suspension or delay, unless the Contractor can establish that stop work notice was not warranted.

ARTICLE 15. CHANGES TO THE WORK

Section 15.01. No Changes Without Consent.
No extra work shall be performed, and no change shall be made, except pursuant to a written Change Order or Proposed Change Order signed by the District, or by a Directive signed by either the District or the District Representative, stating that the extra work or change is authorized, and no claim for any addition to the Contract Sum or Contract Time shall be valid unless so authorized; provided, however, that nothing in this Article shall excuse the Contractor from proceeding with the prosecution of the work so changed. The Contractor shall, when required by the District Representative, furnish an itemized breakdown of the quantities and prices used in computing the value of any change requested by the Contractor, or that may have been ordered by the District, including all items listed in Sections 15.06 and 15.07, below.

Change Orders shall specify the cost adjustments associated therewith, and in no case shall the District pay or become liable to pay any sums different than those specified or those established under Section 15.06 and 15.07.

Certain CCDs must be submitted to, and approved by, DSA prior to being implemented. Substitutions are considered CCDs and, if DSA approval is required, are to be approved by DSA prior to fabrication or use.

Section 15.02. Change Orders.
Subject to legal requirements relating to competitive bidding, the District may require changes in, additions to, or deductions from the work to be performed or the materials to be furnished pursuant to the Contract Documents. Changes may be made pursuant to a written Change Order signed by the District, which shall state the agreement of the District, the Contractor, the Architect, and, if applicable, DSA upon all of the following:

A. The scope of the change in the Work;

B. The amount of the adjustment in the Contract Sum, if any; and

C. The extent of the adjustment in the Contract Time, if any.

The District may also issue unilateral change orders based upon previously issued Directives. Unilateral change orders shall be approved by the District, the Architect, DSA if applicable and the District Representative, but need not be signed by the Contractor.

If the Contractor believes that conditions have changed, or that it has been directed to do additional work requiring a change in time or cost, the Contractor may submit to the District Representative a Proposed Change Order (PCO).

Except for Minor Change Orders described below, all adjustments to the Contract Sum or the Contract Time must be approved by the District.

Signature by the Contractor on the Change Order constitutes its agreement with and acceptance of the adjustments in the Contract Sum and Contract Time, if any, set forth in the Change Order as full and complete satisfaction of any direct or indirect additional cost and/or time incurred by the Contractor in connection with performance of the change work.

Section 15.03. Minor Change Orders by District Administration.
The Board of Education of the District has authorized the District Superintendent or his/her designated deputy to order minor changes or additions in the Work. This authorization allows any change or addition in the Work to be ordered in writing by the Superintendent or designated deputy when the extra cost to the District for any such change or addition does not exceed the amount specifically authorized by the Board of Education.

Section 15.04. Change Orders Regarding Time for Completion.
Any time extension authorized by the District pursuant to Article 14 hereof shall be set forth in a Change Order signed by the District.

Section 15.05. Construction Change Directive/Directive.
Changes also may be made pursuant to a Directive, which shall direct a change in the Work and state a proposed basis for adjustment, if any, in the Contract Sum or Contract Time, or both. A Directive shall be used in the absence of total agreement on the terms of a Change Order, or when time does not permit processing of a Change Order prior to implementation of the change. Directives shall be approved by the District, the Architect, and, if applicable, DSA, but need not be signed by the Contractor. Upon receipt of a Directive, the Contractor shall promptly proceed with the change in the work involved. It is the intent of the District that all Directives will be converted to a Change Order.

When a Directive is used because time does not permit processing of a Change Order prior to implementation of the change, signature by the Contractor on the Directive constitutes its agreement with and acceptance of the adjustments in the Contract Sum and Contract Time, if any, set forth in the Directive as full and complete satisfaction of any direct or indirect additional cost and/or time incurred by the Contractor in connection with performance of the change work.

If the Contractor disagrees with the method for adjustment in the Contract Sum, the adjustment shall be determined by the District Representative on the basis of any of the methods described in Section 15.06A, paragraphs 2, 3, or 4.

Section 15.06. Pricing of Changes.

A. If a Change Order or Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

    1. Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

    2. Unit prices stated in the Contract Documents or subsequently agreed upon;

    3. The District Representative's estimate of the value of the change; or

    4. Time and materials, as set forth in Section 15.07 and 15.08.

Section 15.07. Allowable Costs.

A. Allowable costs for any Change Order shall be limited to the following:

    1. Costs of labor, including social security, medical and unemployment insurance, fringe benefits required pursuant to Article 7, and workers' compensation insurance;

    2. Costs of first line supervision labor, including labor burden as described in Paragraph 1. "First Line Supervision" shall mean a working foreman or lead craft worker other than the project superintendent;

    3. Actual cost of the project superintendent associated with any period of compensable delay caused by issuance of the change order. In the absence of a compensable delay, all of the project superintendent's time is considered to have been paid for as part of the Overhead;

    4. Actual costs of materials, including sales tax and delivery;

    5. Rental costs of machinery and equipment, exclusive of small tools, whether rented from the Contractor or others;

    6. Overhead and Profit as specified below. "Overhead" shall include the following:

        Preparation of all paperwork related to changes in the Work, including field review, estimating and cost breakdown; coordination and supervision, both office and field, including the project superintendent; vehicles including gas and maintenance; small tools, incidentals and consumables; engineering, detailing, and revisions to shop drawings and as-built drawings; general office and administrative

expense; extended and unabsorbed home office overhead; warranty; costs of bonds, liability insurance, and all taxes; and all other expenses not specifically included in Paragraph A above.

B. The Contractor's combined overhead and profit for work performed by its own forces shall be fifteen percent (15%) of the costs specified in Section 15.07(A)(1)-(5). If the changed work is performed by a Subcontractor, the Subcontractor shall be entitled to an allowance of fifteen percent (15%) of its actual labor, material and rental costs for overhead and profit. The Contractor shall be allowed to mark-up the Subcontractor's price ten percent (10%) for its overhead and profit. Cumulative total markup for all tiers of contractors and subcontractors shall not exceed thirty percent (30%).

C. If the net value of a change results in a credit from the Contractor or Subcontractor, the credit shall be the actual net cost, plus five percent (5%) for overhead and profit. When both additions and credits covering related work or substitutions are involved in any one change, the allowance for Overhead and Profit shall be figured on the basis of the net increase or decrease, if any, with respect to the change.

Section 15.08. Time and Materials Adjustment.

A. Pricing and Record Keeping. In the event that the pricing method selected is the time and materials method described in Section 15.06A, paragraph 4, the pricing shall be calculated using the formula and costs set forth in Section 15.07 except that time and material (T & M) labor rates shall be pre-approved by the District Representative for T & M work. The Contractor shall keep and present daily, in such form as the District Representative may prescribe, an itemized accounting together with appropriate invoices and other supporting data of the labor, materials, and equipment used during that day. All labor shall be recorded on separate time sheets clearly identified with the Directive number and scope of extra work involved. These time sheets shall be signed daily by the Project Inspector or the District Representative. No costs will be allowed for time not recorded and signed the same day the work takes place. The Contractor and the District Representative shall discuss and attempt to resolve any disputes concerning the Contractor's daily records at the time the report is submitted.

B. Reconciliation. The Contractor shall, on a monthly basis accompanying the progress payment request, submit a reconciliation for all work performed under a time and materials Directive during the period of the progress payment. A final reconciliation shall be submitted within 30 days after the work of the Directive is completed. The reconciliation shall recap all costs and appropriate markups for the period. No costs will be allowed for work not included in a reconciliation within the time periods specified.

Section 15.09. Effect on Sureties.

All changes authorized by the Contract Documents may be made without notice to or consent of the sureties on the contract bonds, and shall not reduce the sureties' liability on the bonds.

The District reserves the right to require additional payment or performance bonds to secure a change order.

Section 15.10. Unforeseen Site Conditions.

If this Contract requires the digging of trenches or other excavations that extend deeper than four feet below the existing surface, the following provision shall apply to those trenches or excavations:

A. In the event that any of the following described conditions is suspected to exist in the trench or excavation, the Contractor shall promptly, and before the condition is disturbed, notify the District Representative, in writing, of any:

1. Material that the Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.

2. Subsurface or latent physical conditions at the Site differing materially from those indicated in the Contract Documents.

3. Unknown physical conditions at the Site of any unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents.

B. Upon receipt of notice from the Contractor, the District Representative, the District and the Architect shall promptly investigate the conditions, and if it is determined that the conditions do materially so differ or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the work shall issue a Change Order or Directive under the procedures described in the Contract Documents.

C. In the event that a dispute arises between the District and the Contractor as to whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the work, the Contractor shall not be excused from any scheduled completion date provided for by the Contract Documents, but shall proceed with all work to be performed under the Contract Documents. The Contractor shall retain any and all rights provided either by the Contract Documents or by law which pertain to the resolution of disputes and protests between the contracting parties.

D. No contract adjustment which results in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice under paragraph A of this Section 15.10.

E. No contract adjustment will be allowed under the provisions specified in this section for any effects caused on unchanged work.

Section 15.11. Notice of Dispute

If the Contractor intends to make a claim for a change in the Contract Sum or Contract Time, the Contractor must give the District Representative written notice within ten (10) days of the occurrence of the event giving rise to the claim. Thereafter, the Contractor may proceed with a claim as provided for in Articles 21 and 23. Failure to provide the written notice within ten (10) days of the occurrence of the event giving rise to the claim shall constitute a waiver by the Contractor of any claim for a change in the Contract Sum or Contract Time.

ARTICLE 16. DISTRICT'S RIGHT TO CARRY OUT THE WORK

Section 16.01. Notice of Default; Deduction of Cost.
If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within three (3) days after receipt of written notice from the District to commence and continue correction of the default or neglect with diligence and promptness, the District may, without prejudice to any other remedy it may have, correct the deficiencies and may further elect to complete that portion of the Work through such means as the District may select, including the use of a new contractor. In such case, an appropriate Change Order shall be issued deducting from the payments then or thereafter due the Contractor the cost of correcting the deficiencies, and any other appropriate costs, including compensation for the Architect's, the Project Inspector's and the District Representative's additional services made necessary by the default, neglect or failure. If the payments then or thereafter due the Contractor are not sufficient to cover that amount, the Contractor shall pay the difference to the District.

Section 16.02. Disputed Work.
If a dispute arises as to who is responsible for cleaning up pursuant to Section 19 or for accomplishing coordination or doing required cutting, filling, excavating or patching, the District may carry out such work and charge the cost to the responsible contractors, as the District may determine.

Section 16.03. Assignment of Work.
The District reserves the right to perform any portion of the Project with its own forces or with other contractors as it sees fit. The Contractor will cooperate and coordinate with the District's efforts in this regard. The Contractor may be assigned work by other District contractors when required to properly coordinate project activities.

ARTICLE 17. REJECTION AND REPLACEMENT OF WORK AND MATERIALS

Section 17.01. Rejection of Materials and Workmanship.
The District shall have the right to reject materials and workmanship which are determined by the District Representative, the Architect, or the Project Inspector to be defective or fail to comply with the Contract Documents. Rejected workmanship shall be corrected to the satisfaction of the District and/or Architect, and rejected materials shall be removed from the premises and replaced, all without added cost to the District and/or an increase in the Contract Time.

If the Contractor does not correct such rejected work and/or materials within a reasonable time, fixed by the District Representative or the Architect in a written notice to the Contractor, the District may correct the same and charge the expense to the Contractor, and deduct such expense from the next progress payment otherwise payable to the Contractor.

If the District determines that it is in its best interest not to correct defective workmanship and/or materials, or work not done in accordance with the Contract Documents, the Contractor agrees that an equitable deduction from the Contract Sum shall be made therefor, and deducted from the next progress payment otherwise payable to the Contractor.

Section 17.02. Correction of Work.
The Contractor shall promptly correct all work rejected by the District Representative, Project Inspector or the Architect as defective or as failing to conform to the Contract Documents, whether observed before or after final completion and whether or not fabricated, installed or completed. The Contractor shall bear all costs of correcting such rejected work including compensation for the Architect's, Project Inspector's and the District Representative's additional services.

If within two (2) years after the Date of Completion and acceptance of the Work or within such longer period of time as may be prescribed by law or by the terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct any or all such work, together with any other work which may be displaced in so doing, without expense to the District, promptly after receipt of a written notice from the District unless the District has previously given the Contractor a written acceptance of such condition. The District shall issue a correction notice promptly after discovering the condition. The Contractor shall notify the District upon completion of repairs. This obligation shall survive termination of the Contract with respect to work in place prior to termination.

The Contractor shall bear the cost of making good work destroyed or damaged by such correction or removal.

Nothing contained in this Section shall be construed to establish a period of limitation with respect to any other obligations which the Contractor might have under the Contract Documents or by operation of law. The establishment of the time period of two (2) years after the Date of Completion, or such longer period of time as may be prescribed by law or by the terms of any warranty required by the Contract Documents, relates only to the specific obligation of the Contractor to correct the Work and has no relationship to the time within which an action may be commenced to establish the Contractor's liability with respect to its obligations other than specifically to correct the work.

ARTICLE 18. DISTRICT'S RIGHT TO TERMINATE CONTRACT

Section 18.01. Termination by the District for Convenience.
The District may at any time and for any reason, terminate, in whole or in part, Contractor's Work at the District's convenience. Termination shall be by written notice to Contractor. Upon receipt of such notice, Contractor shall, unless the notice directs otherwise, immediately discontinue Contractor's work and the placing of orders for materials, facilities and supplies in connection therewith, and shall, if requested, make every reasonable effort to procure cancellation of all existing orders or contracts upon terms satisfactory to the District, or at the option of the District, the District shall have the right to assume those obligations directly, including all benefits to be derived there from. Contractor hereby assigns to the District all of its interest in said orders and/or contracts, and the assignment of said orders and/or contracts shall be effective upon notice of acceptance by the District in writing, and only as to those orders and/or contracts which the District designates in writing. Following receipt of notice of termination, Contractor shall thereafter do only such work as may be necessary to preserve and protect portions of its work already in progress and to protect materials and equipment on or in transit to the Project.

Upon such termination, Contractor shall be entitled to payment only as follows: (1) Contractor's direct, actual cost of the Work allocable to the portion of the Work completed in conformity with the Contract, but in no event to exceed the amount of the Contract Sum allocable to the portion of the Work completed in conformity with the Contract; plus (2) previously unpaid costs of any items delivered to the Project Site which were fabricated for subsequent incorporation in the Work, but in no event to exceed the portion of the Contract Sum allocable to said items; plus (3) an allowance of ten percent (10%) of the foregoing costs for Contractor's overhead and profit; plus (4) any proven losses with respect to materials and equipment directly resulting from the termination; plus (5) reasonable demobilization costs. The costs referred to in this Section shall be calculated and documented as required for a change order under Article 15 of the General Conditions, except that mark-up for overhead and profit shall be only as allowed by this Section. There shall be deducted from such sums the amount of any payments made to Contractor prior to the date of the termination of this Contract. Contractor shall not be entitled to any claim or claim of lien against the District for any additional compensation or damages in the event of such termination and payment beyond that provided for in this Section.

In connection with any termination for convenience, Contractor shall allow the District, District Representative or any authorized representative(s) to inspect, audit, or reproduce any records to the extent necessary for the District or District Representative to evaluate and verify the costs incurred by Contractor in performing the Work, including direct and indirect costs such as overhead allocations. Contractor will make this material available upon 48-hours' written notice from the District or District Representative. The District and District Representative may inspect and copy, from time to time and at reasonable times and places, any and all information, materials and data of every kind and character (hard copy, as well as computer readable data if it exists), including without limitation, books, papers, documents, subscriptions, recordings, estimates, price quotations, agreements, purchase orders, leases, contracts, commitments, arrangements, notes, daily diaries, superintendent reports, drawings, receipts, vouchers, monthly, quarterly, yearly or other financial statements, and any and all other information or documentation that may, in the judgment of the District or District Representative, have any bearing on or pertain to any matters, rights, duties, or obligations under or covered by the Contract Documents. Such records shall include but not be limited to, the following: accounting records, payroll records, job cost reports, job cost history, margin analysis, written policies and procedures, subcontract files (contracts, correspondence, change order files, including documentation covering negotiated settlements), back charge logs and supporting documentation, general ledger entries detailing cash and trade discounts earned, insurance rebates and dividends, and any other documents customarily maintained by contractors performing work on public works projects or that the District or District Representative otherwise deem necessary to substantiate charges related to a Termination.

If this Contract is terminated for default under Section 18.02 and if it is later determined that the default was wrongful, such default termination automatically shall be converted to and treated as a termination for convenience under this Section. In such event, Contractor shall be entitled to receive only the amounts payable under this Section, and Contractor specifically waives any claim for any other amounts or damages, including any claim for consequential damages or lost profits.

Section 18.02. Termination by the District for Cause.
The District may terminate the Contract, pursuant to the provisions of this Article, for the following causes:

A. The Contractor is insolvent or has made a general assignment for the benefit of creditors, or a receiver has been appointed on account of the insolvency of the Contractor.

B. The Contractor or any of its Subcontractors violate any of the provisions of the Contract Documents or fail to perform the work within the time specified in the current Contract Schedule.

C. The Contractor or any of its Subcontractors should fail to make prompt payment to Subcontractors or material suppliers for material or for labor as required by statute.

D. The Contractor or a Subcontractor persistently disregards laws, ordinances, or the instructions of the District Representative, Architect or the District.

E. The Contractor fails to abide by a stop work notice issued pursuant to Article 9 or fails to correct rejected work or materials as required by Article 17.

F. The Contractor fails to provide and keep in full force and effect all insurance required by Article 3, or fails to cause all Subcontractors to so comply.

G. The Contractor fails to supply a sufficient number of properly skilled workers or proper materials.

H. The Contractor commits any substantial violation of the terms and conditions of the Contract Documents which the District, in its sole discretion, finds to be a material breach of the Contract.

Section 18.03. Procedure for Termination for Cause.
The District may, without prejudice to any other right or remedy, give written notice to the Contractor and its surety or sureties of its intention to terminate the Contract.

Unless within seven (7) days of the delivery of such notice, the Contractor shall cease such violation and make satisfactory arrangements for a correction thereof, which arrangements are set forth in a written agreement signed by the Contractor and the District Representative, the Contractor's right to complete the Work shall cease and terminate.

In the event of any such termination, the District shall immediately give written notice thereof to the surety and to the Contractor and the surety shall have the rights and obligations set forth in the performance bond. If the District is forced to take over the Work, it may prosecute the same to completion by contract or by any other method it may deem advisable, for the account and at the expense of the Contractor, and the Contractor and its sureties shall be liable to the District for any excess costs, including management, supervision, and design support, occasioned thereby. In such event, the District may, without liability, take possession of and utilize in completing the Work, the Contractor's materials whether stored at the Site or elsewhere, that are necessary for completion. Contractor hereby assigns to the District all of its interest in orders and/or contracts existing at the time of termination. The assignment of said orders and/or contracts shall be effective upon notice of acceptance by the District in writing, and only as to those orders and/or contracts which the District designates in writing. Whenever the Contractor's right to proceed is terminated, the Contractor shall not be entitled to receive any further payment until the Work is finished and shall be liable to the District for liquidated damages for all periods of time from such termination date until the Date of Completion, as well as for all losses incurred by the District in completing the Work.

Section 18.04. Option in Event of a Loss.
In the event that any destruction or loss should exceed twenty percent (20%) of the value of the construction completed to date, as determined at the end of the preceding month, or is due to an "Act of God," the District shall have the option, at its sole discretion, to terminate this Contract.

Section 18.05. Provisions for Termination of Contract.
This Contract is subject to termination as provided by Sections 4410 and 4411 of the Government Code, being portions of the Emergency Termination of Public Contracts Act of 1949.

Section 18.06. Survival of Obligations.
No termination of this Contract or of Contractor's Work shall excuse or otherwise relieve the Contractor of its responsibilities under the Contract Documents with respect to any Work performed prior to the date of termination, including, without limitation, its obligation to perform the Work in a good and workmanlike manner, free of defects, and in accordance with the Contract Documents, its warranty obligations with respect to the Work, and its obligation to make all payments due. All of Contractor's responsibilities under the Contract Documents with respect to the Work performed prior to the date of termination shall survive any termination.

Section 18.07. Termination After Contract Time.
In addition to any rights it may have, the District may terminate this Contract at any time after the Contract Time, as adjusted by any extensions of time that the District may have granted.

Upon such termination, in addition to the Contractor's obligations under Section 18.06 and the other provisions of the Contract Documents, the Contractor shall not be entitled to receive any compensation for services rendered before or after such termination until the Work is completed, and the Contractor shall be liable to the District for liquidated damages for all periods of time from the Contract Time, adjusted by any extensions of time that the District may have granted, until the Date of Completion, as well as for all losses incurred by the District in completing the Work.

ARTICLE 19. PRESERVATION AND CLEANING

Section 19.01. Periodic Cleaning of Project.
The Contractor shall properly clean its work and the Site, and maintain its work area in an orderly manner. The Contractor shall remove all dirt, debris, waste, rubbish, and implements of service from the Project, the adjacent sidewalks and streets, and the working area daily or as directed by the District Representative. Debris, waste, or unused construction materials shall not be left under, in, or about the Project, nor allowed to accumulate on the Site or in the working area.

The Contractor, at its sole cost, shall contract with a disposal company to remove all rubbish, and shall have the refuse containers emptied at frequent enough intervals so that waste does not overflow the containers.

If the Contractor fails to clean up during progress or upon completion of the Work, the District may, at the Contractor's expense, do so as provided in Article 16.

Section 19.02. Final Cleaning of Project.
At completion of the Work and prior to final acceptance/inspection and occupancy by the District, the Contractor shall thoroughly clean the interior and exterior of the buildings, and the Site and adjacent areas, of all material related to its performance of the Work. In the event the Contractor fails to do so, the District may cause this work to be done at the Contractor's expense, as provided in Article 16. The following list is not inclusive but to act as a guideline:

A. Removal of all spots, stains, paint spots, rubbish, debris, tools, equipment, trade markings and labels, and accumulated dust and dirt from all areas and broom clean. Steam clean all carpets and mop floors.

B. Cleaning interior and exterior of the buildings including all windows in any area affected by the Work.

C. Brush off, broom sweep, dust and clean ledges, stairs, doors, hardware, chalk board trays and any adjoining rooms or areas that were affected by the Work.

D. The Contractor shall clear grounds and exterior paved areas and walks of all construction debris, dirt and dust and shall repair any Site areas damaged during the course of construction.

Prior to final completion or District occupancy, the Contractor shall conduct an inspection of sight-exposed surfaces, and all work areas, to verify that the entire work is clean. In the event the Contractor fails to do so, the District may cause this work to be done at the Contractor's expense.

ARTICLE 20. COMPLETION, INSPECTION, AND OCCUPANCY BY DISTRICT

Section 20.01. Notice of Punch List Inspection.
When the Contractor believes that a phase of its Work is complete, it shall request in writing a punch list inspection in the form provided by the District. Within five (5) days of the receipt of such request, the District Representative, the Project Inspector and the Architect shall make a punch list inspection or inform the Contractor that the work is not ready for punch list inspection; upon completion of the deficient work, the Contractor shall again request a punch list inspection. The Contractor or its representatives shall be present at the punch list inspection. The purpose of the punch list inspection is to determine whether the Work has been completed in accordance with the Contract Documents, including all Change Orders, all interpretations and instructions previously issued.

If the Contractor requests a punch list inspection when the Work is not ready for the inspection, the Contractor shall pay all costs associated with the inspection.

If Contractor fails to attend any punch list inspection, the Contractor shall be charged for the cost of the District Representative, Architect, the Project Inspector, and other design professionals who attended the punch list inspection.

Completion of any phase of the Work does not result in final completion, or in any way alter the payment provisions after final completion.

Section 20.02. Punch List.
The District Representative, the Project Inspector and the Architect shall notify the Contractor in writing of any deficiencies to be remedied prior to final acceptance, by preparing a written list, known in the industry as a punch list.

The Contractor shall remedy all items shown on the punch list prior to final acceptance by the District Representative, the Project Inspector and the Architect.

No one is authorized to amend the Contract Documents by use of the punch list; it is provided solely for the benefit of the Contractor to enable it to determine what items must be corrected before final acceptance will be recommended by the District Representative, the Project Inspector and the Architect. The District reserves the right to require compliance with the Contract Documents, notwithstanding the issuance of a punch list or the completion by the Contractor of all items on the punch list.

In the event that the Work still does not comply with the Contract Documents, the District reserves the right to issue such further punch lists as may be required, or to deduct from the final payment the cost of correcting any work not completed in accordance with the Contract Documents, but accepted by the District, without the issuance of further punch lists.

If punch list work needs to be performed after the District has taken occupancy of a phase, the work shall be conducted outside of normal school hours at the direction of the District Representative.

Section 20.03. Use of Work Prior to Acceptance.
Whenever, in the opinion of the District, the Work or any part thereof, is in a condition suitable for use, and the best interests of the District require such use, the District may take possession of, connect to, and open for public or District use that portion of the Work. Contractor acknowledges and agrees such occupancy and/or use does not constitute acceptance or completion as defined by California Civil Code section 9200.

Section 20.04. Repairs or Renewal in the Work.
Prior to the Date of Completion, the Contractor shall make all repairs or renewals in the portion of the Work occupied pursuant to Section 20.03 made necessary due to defective material or workmanship, or the operations of the Contractor, ordinary wear and tear excepted.

Section 20.05. Effect of Occupancy.
The District's occupancy as contemplated in this Article shall not constitute acceptance by the District of the Work or any part thereof. Such use shall neither relieve the Contractor of any of its responsibilities under the Contract

Documents, nor act as a waiver by the District of any of the terms or conditions of the Contract Documents. Any damage done by the District is the responsibility of the District. Contractor acknowledges and agrees that any occupancy and/or use of all or any portion of the work of improvement does not constitute acceptance or completion within the meaning of California Civil Code section 9200.

Section 20.06. Coordination with Other Activities.
The Contractor shall conduct its operations so as not to interfere unreasonably with the District's use of the occupied portions of the Site. The Contractor shall submit periodic schedules to the District Representative proposing the times, areas, and types of work to be done within such areas.

If the Work produces conditions rendering the occupied portions of building, the Site, or other areas uninhabitable, either because of noise, dust, vibration, smoke, fumes, or for any other cause whatsoever, the District Representative may suspend the Work or direct the Contractor to modify the Contract Schedule, and the Contractor shall comply.

Except as provided by Change Order, the Contractor shall not be entitled to a time extension or increase in the Contract Sum by virtue of conflicts between the Contractor's work and the District's occupancy.

ARTICLE 21. CONTRACT CLOSEOUT

Section 21.01. Contractor's Request for Final Payment.
When the Contractor determines that all of the Work on the Project is complete and all items on the punch list have been satisfied, or contends that such items are not required by the Contract Documents, the Contractor shall submit a certificate of completion and an application for final payment on the form provided.

Section 21.02. Additional Submissions.
Simultaneously with the Contractor's certificate of completion and request for final payment, the Contractor shall submit the following items to the District Representative:

A. As-built drawing information pursuant to Section 5.08.

B. Two (2) sets of documentation completely covering the operation and maintenance of the mechanical and electrical installation, elevators, kitchen equipment, and all other equipment required by the technical specifications to be furnished with such manuals. The documentation shall include charts, diagrams, performance curves, catalog information, lubrication manuals, and details pertaining to the functioning of various items of equipment. The documentation shall be divided logically into "systems" on the basis of operation, without respect to trades, subcontractors or arbitrary specifications sections. The relationship of the "systems" shall be clearly and concisely detailed.

C. Hazardous material documentation as required.

D. Form DSA-6 Final Verified Reports.

E. All other required DSA, California Department of Education, State Allocation Board and Office of Public School Construction forms.

F. Any extra stock material and equipment and manufacturer warranties/guarantees as required by the Contract Documents.

G. Other items as required in Section 00 73 00.

No payment will be processed unless accompanied by the above listed submissions in acceptable form.

Section 21.03. Final Payment Process.
Upon approval of the submittals required by this Article and receipt of the Contractor's final payment application, and upon verification that all of the Work is complete, including all punch list items, the District Representative shall either (1) recommend to the District that the payment application be accepted, which recommendation shall be made within five (5) business days of receipt of the Contractor's final payment application, or (2) send a notice to the Contractor rejecting the payment application, stating the basis therefor, and submitting a written estimate of the sum due to the Contractor, which written estimate shall be provided to the Contractor within twenty (20) calendar days of the District Representative's receipt of the Contractor's final payment application. The District Representative's estimate shall take into account the Contract Sum, as adjusted by any Change Orders; amounts already paid; and sums to be retained for incomplete work, liquidated damages, and for any other cause under the Contract Documents. Any protest by the Contractor of the District Representative's estimate shall be as set forth in Section 21.04 and Article 23.

The Architect shall prepare a statement of final inspection, stating that the Work has been given a final inspection, that the Contractor has submitted the required documents, setting forth with detail any deviations in the Work as completed from the Contract Documents, and estimating the cost of correction of such deviations.

The Architect's statement shall be transmitted to the District along with the Contractor's application for final payment approved by the District Representative, Architect and Project Inspector. The District Representative shall provide a copy of the Architect's statement of final inspection to the Contractor.

Section 21.04. Protest of the District Representative's Estimate; Claims.
If the Contractor contests the estimate of sums due prepared by the District Representative, the Contractor may file a claim in writing with the District Representative pursuant to the requirements of Article 23 and setting forth in detail all grounds alleged by the Contractor to justify an adjustment to the District Representative's estimate. The Contractor's claim shall be certified under penalty of perjury and in compliance with the California False Claims Act. Failure to include these required certifications will constitute grounds for immediate rejection of the claim.

Failure to file a timely claim shall constitute a waiver and acceptance by the Contractor of the District Representative's estimate, which shall then become final and be forwarded to the District for approval of payment.

Section 21.05. Completion; Acceptance of Contract; Notice of Completion.
The Contractor acknowledges and agrees that completion shall mean the Contractor's complete performance of all Work required by the Contract Documents, amendments, Change Orders, Construction Change Directives and punch lists, and the District's formal acceptance of the Work, without regard to prior occupancy, substantial completion doctrine, beneficial occupancy or otherwise.

Acceptance of the Work shall be made only by formal acceptance by the District. Recordation of a Notice of Completion shall be in the manner prescribed by law, provided that the Work shall then be fully and satisfactorily completed and the provisions of the Contract Documents fully and satisfactorily performed in all respects.

Section 21.06. Approval of Final Payment.
Following acceptance of the Work, the District shall authorize final payment to the Contractor of the undisputed sums found due, subject to retentions for stop notices as provided in Section 21.07 below. This final payment shall be made within sixty (60) days after completion, as defined in Section 21.05 above, and recordation of the Notice of Completion.

Section 21.07. Withholding for Stop Notices.
The District may, in its sole discretion, and at any time, withhold from the Contractor any unpaid claims alleged in Stop Notices filed pursuant to the California Civil Code. The District reserves all remedies it may have in the event of a stop notice dispute. The basic standard to determine a sufficient withholding in the event of a Stop Notice shall be one hundred fifty percent (150%) of the total of all stop notices filed; provided, however, the District reserves the right to withhold different or greater sums in its discretion.

Section 21.08. Non-Waiver.
Neither acceptance of, nor payment for, the Work or any part thereof, nor any extension of time, nor any possession taken by District shall operate as a waiver of any of the provisions of this Contract, nor shall a waiver of any breach of this Contract be held to be a waiver of any other or subsequent breach. In addition, recordation of a Notice of Completion shall not be deemed an acceptance of latent defects, nor shall it constitute a waiver of any of the provisions of this agreement.

ARTICLE 22. GUARANTEES

Section 22.01. Guarantee Required.
In addition to any guarantees required elsewhere by the Contract Documents, the Contractor shall guarantee the Work for a minimum of two (2) years from and after the recordation of the Notice of Completion and completion of all contract obligations by the Contractor, including formal acceptance of the entire Project by the District. The Contractor specifically waives any right to claim or rely on the statutory definition of completion set forth in Civil Code section 9200. The Contractor specifically acknowledges and agrees that completion shall mean the Contractor's complete performance of all Work required by the Contract Documents, amendments, Change Orders, Directives, CCDs and punch lists, and the District's formal acceptance of the entire Project, without regard to prior occupancy, substantial completion doctrine, beneficial occupancy, or otherwise. Such guarantee shall be made on the form provided, as set forth in Specification Section 00420.

The guarantee period for corrected defective work shall continue for a duration equivalent to the original guarantee period.

Such guarantee is in addition to, and not in lieu of, the District's rights to enforce this Contract in all respects.

ARTICLE 23. CLAIM REQUIREMENTS

Claims shall be subject to the requirements of Public Contract Code sections 20104 *et seq.* and 9204. A summary of those provisions is set forth below. A waiver of the rights granted by the referenced statutes is void and contrary to public policy, provided, however, that (1) upon receipt of a Claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and (2) the District may prescribe reasonable change order, claim, and dispute resolution procedures and requirements in addition to the statutory requirements, so long as the contractual provisions do not conflict with or otherwise impair the statutory timeframes and procedures. To the extent that the summary below is inconsistent with any requirement of those statutes, the statutes shall control. The terms below are intended to be consistent with the governing statutes, and any modifications shall be understood as lawful modifications or additions to the statutory requirements if at all possible.

Section 23.01. Notice of Potential Claim.
The Contractor shall promptly provide a written Notice of Potential Claim to the District upon discovery of concealed or unknown conditions or discovery of facts regarding any disagreement, protest, direction, situation, event, or occurrence that may result in a claim, including but not limited to changes in work and delays. The written Notice of Potential Claim shall set forth the reasons for which the Contractor believes adjustment to the Contract Price or Contract Time will or may be due, the nature of the costs and/or time involved, and, insofar as possible, the amount of the potential claim. The Notice shall be submitted as soon as practical, but no more than five (5) working days after the discovery of any facts or event that does or may give rise to the claim, unless a different period for notice is specified in the Contract Documents. **Failure to timely submit the Notice of Potential Claim constitutes acknowledgement that the condition(s), fact(s), occurrence(s) or event(s) did not cause any increase in cost or time to perform and waives any Claim that the Contractor otherwise may have had the right to submit based on such condition(s), fact(s), occurrence(s) or event(s).**

Section 23.02. Definitions.

"Claim" means a separate demand by Contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:

(A) a time extension, including, without limitation, for relief from damages or penalties for delay assessed by a public entity under a contract for a public works project.

(B) payment by the public entity of money or damages arising from work done by, or on behalf of, Contractor pursuant to the contract for a public works project and payment for which is not otherwise expressly provided or to which the claimant is not otherwise entitled.

(C) payment of an amount that is disputed by the District.

"Mediation" means any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation.

"Public works contract" or "public works project" means the erection, construction, alteration, repair, or improvement of any public structure, building, road, or other public improvement of any kind.

"Subcontractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who either is in direct contract with the Contractor or is a lower tier subcontractor.

Section 23.03. Claims Procedure.
All Claims under this Contract shall be resolved using the following procedure.

23.03.01 The Claim shall be in writing and include the documents necessary to substantiate the Claim. The evaluation of the Claim will be based on the District's records and the Claim documentation submitted by the claimant, which shall include but not be limited to the

following: an explanation of the background; a chronology (including dates of all key events and date(s) that the Notice of Potential Claim was given); an explanation of the Contractor's position; supporting documentation of merit; analysis of delay for any claimed additional time, including CPM schedules; and a calculation of damages or additional amounts claimed, if any. Supporting documentation of merit may include, but not be limited to, Construction Documents, correspondence, conference or meeting notes, shop drawing logs, survey books, inspection reports, delivery schedules, test reports, daily reports, subcontracts, CPM schedules, photos, RFIs, Directives, and other such records. Supporting documentation of damages may include, but not be limited to, certified payroll reports; purchase orders; invoices; project as-planned and as-built costs; Subcontractor payment releases; quantity reports; other related records; general ledger and any other accounting materials.

Claims must be filed on or before the date of final payment, <u>except that</u> the Claim must be submitted no later than thirty (30) days from the date of the District Representative's estimate of sums due. Any Claim shall be certified under penalty of perjury and in compliance with the California False Claims Act, as set forth in Section 23.04 below. Failure to include these required certifications will constitute grounds for immediate rejection of the Claim and shall be deemed a waiver and absolute bar of the Claim, including any right to pursue the Claim further.

23.03.02 If a Subcontractor, including a lower tier Subcontractor, lacks legal standing to assert a Claim against the District because privity of contract does not exist, then the Contractor may present a Claim on behalf of such a Subcontractor. A first-tier Subcontractor may request in writing, either on its own behalf or on behalf of a lower tier Subcontractor, that the Contractor present a Claim on behalf of the Subcontractor for work that was performed by the Subcontractor. The Subcontractor requesting that the claim be presented shall furnish reasonable documentation to support the Claim. Within 45 days of receipt of this written request, the Contractor shall notify the Subcontractor in writing as to whether the Contractor presented the Claim and, if the Contractor did not present the Claim, provide the Subcontractor with a statement of the reasons for not having done so.

23.03.03 Upon receipt of a Claim, the District shall conduct a reasonable review of the Claim. Within 30 days of receipt of the Claim, the District may request, in writing, any additional documentation supporting the Claim or relating to defenses to the Claim that the District may have against the claimant. Where additional information is requested by the District, the time in which the District must respond to a Claim shall be tolled until all requested information is provided. If additional information is thereafter required, then it shall be requested and provided upon mutual agreement of the District and the Contractor.

23.03.04 Within 45 days of receipt of the Claim, as that time may be tolled as provided in Section 23.03.03 above, the District shall provide the Contractor with a written statement identifying what portion of the Claim is disputed and what portion is undisputed. Upon receipt of a Claim, the District and the Contractor may, by mutual agreement, extend the time period for a response. Failure by the District to respond to a Claim within the time periods described herein shall result in the Claim being deemed rejected in its entirety. A Claim that is denied by failure of the District to respond shall not constitute an adverse finding with regard to the merits of the Claim or the responsibility or qualifications of the claimant.

23.03.05 Any payment due on an undisputed portion of the Claim shall be processed and made within 60 days after the District issues its written statement. The District shall not fail to pay money as to any portion of a claim which is undisputed except as otherwise provided in the Contract.

23.03.06 If the claimant disputes the District's written response, or the District fails to respond within the time prescribed, the Contractor may so notify the District, in writing, either

within 15 days of receipt of the District's response or within 15 days of the District's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand, sent by registered mail or certified mail, return receipt requested, the District shall schedule a meet and confer conference within 30 days for settlement of the dispute.

23.03.07 Within 10 business days following the conclusion of the meet and confer conference, if the Claim or any portion of the Claim remains in dispute, then the District shall provide the Contractor a written statement identifying the portion of the Claim that remains in dispute and the portion that is undisputed. Failure by the District to provide the written statement within the time periods described herein shall result in the remaining Claim issues being deemed rejected in their entirety. Denial by failure of the District to respond shall not constitute an adverse finding with regard to the merits of the remaining Claim issues or the responsibility or qualifications of the claimant. Any payment due on an undisputed portion of the Claim shall be processed and made within 60 days after the District issues its written statement.

23.03.08 Any remaining disputed portion of the Claim following the meet and confer conference shall be submitted to nonbinding mediation, with the District and the Contractor sharing the associated costs equally. The District and Contractor shall mutually agree to a mediator within 10 business days after the disputed portion of the Claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the Claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. Unless otherwise agreed to by the District and the Contractor in writing, the mediation conducted pursuant to this Section shall excuse any further obligation under Public Contract Code Section 20104.4 to mediate after litigation has been commenced. This Section does not preclude arbitration if mediation under this Section does not resolve the parties' dispute.

23.03.09 If mediation is unsuccessful, then the Contractor may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code with respect to the parts of the Claim remaining in dispute. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the Contractor submits his or her written Claim pursuant to Section 23.03.01 until the time that mediation of disputed portions of that Claim is completed. This Section does not apply to tort claims, and nothing in this Section is intended nor shall be construed to change the time periods for filing tort claims or actions specified by Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code.

23.03.10 Amounts not paid in a timely manner as required by this Section shall bear interest at seven percent (7%) per year.

23.03.11 Claims of $375,000 or less are subject to the following procedures for civil actions filed to resolve the claims:

(a) The case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act (Title 4 (commencing with Section 2016.010) of Part 4 of the Code of Civil Procedure) shall apply to any such proceeding, consistent with the rules pertaining to judicial arbitration.

(b) The parties stipulate that the arbitrator shall be experienced in construction law and shall be paid necessary and reasonable hourly rates of pay not to exceed their customary rate, and such fees and expenses shall be paid equally by the parties, except in the case of arbitration where the arbitrator, for good cause, determines a different division. In no event shall these fees or expenses be paid by state or county funds.

(c) In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, any party who, after receiving an arbitration award, requests a trial *de novo* but does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, pay the attorneys' fees of the other party arising out of trial *de novo.*

(d) The court may, upon request by any party, order any witnesses to participate in arbitration process.

In any suit filed under Public Contract Code Section 20104.4, the District shall pay interest at the legal rate on any arbitration award or judgment. The interest shall begin to accrue on the date the suit is filed in a court of law.

Section 23.04. Claim Certification.
Contractor acknowledges that it has read and is familiar with the provisions of the False Claims Act (California Government Code sections 12650 *et seq*.). Submission by Contractor of any claim (as the term "claim" is defined in False Claims Act) to the District in connection with the Project, whether on its behalf or on behalf of a Subcontractor or material supplier, shall constitute a representation by Contractor to the District that submission of the claim does not in any respect, violate the False Claims Act. Any party with an interest in the claim, including Contractor and any Subcontractor or material supplier, shall certify under penalty of perjury the validity and accuracy of any claim submitted to the District, as provided below. Compliance with this claims certification requirement shall be a condition precedent to any obligation District might otherwise have to review the claim, and failure to provide such certification shall constitute a waiver of the claim.

The claim certification required by this section shall provide as follows:

CLAIM CERTIFICATION

Under penalty of perjury, and with specific reference to the California False Claims Act, Government Code sections 12650 *et seq*. I certify that submission of the attached claim is made in good faith; that the supporting data prepared by the undersigned company are accurate and complete to the best of my knowledge and belief; that submission of the claim to the District does not violate the False Claims Act; and that I am duly authorized to certify the claim on behalf of the claimant.
Dated: _____

Company_____

Signature _____

Title_____

Section 23.05. Continuance of Work.
In the event of a dispute between the parties as to performance of the Work or the interpretation of the Construction Documents, or payment or nonpayment for Work performed or not performed, the parties shall attempt to resolve the dispute. Pending resolution of this dispute, the Contractor agrees to continue the Work diligently to completion. If the dispute is not resolved, except as provided otherwise in the Contract, the Contractor agrees it will neither rescind the Contract, nor stop the progress of the Work on the Project.

ARTICLE 24. ADDITIONAL PROVISIONS

Section 24.01. Conflict of Interest.
No official of the District who is authorized on behalf of the District to negotiate, make, accept, or approve, any architectural, engineering, inspection, construction, or materials supply contract, or any subcontract in connection with the construction of the Project, or any land acquisition in connection with the Project, shall become directly or indirectly interested personally in this contract or in any part thereof.

No officer, employee, architect, attorney, engineer, or inspector of or for the District who is authorized on behalf of the District to exercise any executive, supervisory, or other similar function in connection with the construction of the Project shall become directly or indirectly interested personally in this contract or any part thereof.

Section 24.02. No Agreements.
No verbal agreement or conversation with any officer, agent, or employee of the District, either before, during, or after the execution of the Contract Documents shall affect or modify any term or condition contained in the Contract Documents, nor shall such verbal agreement or conversation entitle the Contractor to any additional payment or time to perform whatsoever under the terms of this agreement.

Section 24.03. Anti-Trust Assignment.
By execution of the Contract Documents, or any subcontract awarded by the Contractor, the Contractor or any Subcontractor offers and agrees to assign and hereby does assign to the District all rights, title, and interest in and to all causes of action the Contractor or Subcontractor may have under Section 4 of the Clayton Act (15 USC Section 15) or under the Cartwright Act (Chapter 2 of Part 2 of Division 7 of the Business and Professions Code, commencing with Section 16700), arising from purchases of goods, services, or materials pursuant to this public works contract or subcontract. This assignment shall be made and shall become effective at the time the District tenders final payment to the Contractor, without further acknowledgment by the parties.

Section 24.04. Contractor Not Agent, Nor Employee.
Neither the Contractor nor any subcontractor, or any officer, agent, or employee of either, is, nor shall they represent themselves to be, an officer, agent, or employee of the District for any purpose whatsoever.

No person employed by the Contractor, or by any subcontractors, are, nor shall they be construed to be in any manner or for any purpose whatsoever, employees of the District.

Section 24.05. Access to Records.
The District or the District's authorized representative shall have access, upon reasonable notice, during normal business hours, to any books, documents, accounting records, papers, project correspondence, project files, scheduling information and other relevant records of the Contractor and all subcontractors directly or indirectly pertinent to the Work, original as well as change and claimed extra work, to verify and evaluate the accuracy of cost and pricing data submitted with any change order prospective or executed, or any claim for which additional compensation has been requested.

Such books, documents and other records mentioned above shall include, but are not limited to all those reasonably necessary in the opinion of the District to determine the accurate amount of direct and indirect costs, job site, area and home office overhead, delay and impact costs, however characterized, and shall include the original bid and all documents related to the bid and its preparation, as well as the as-planned Contract Schedule and all related documents.

Such access shall include the right to examine and audit such records, and make excerpts, transcriptions and photocopies at the District's cost.

END OF SECTION

(Print these Pages in Yellow)

Section 00 73 00 - SPECIAL PROVISIONS

ARTICLE 1: SCOPE OF WORK

Section 1.01 Bid Package(s)

A. Bidder shall carefully review the total scope of responsibilities with respect to the Work of BP#_____, and shall provide for the total scope in its Proposal.

Section 1.02 **License Classification**: **[Insert Required License Classification - Typically B-1, General]**

Section 1.03 Scope of Work

Included:

1. Furnish and install all labor, material and equipment for all Work shown and/or specified in accordance with the Contract Documents, except as excluded below.
2. This Scope of Work Section 1.03 also applies to all applicable awarded alternates.
3. Information provided under "Also Included" points out some items which may be considered less obvious or "unconventional", but which are included in the Scope of Work.
4. This Bid Package Description is intended to clarify scope to the Contractor, but is in no way intended to limit scope that is reasonable inferable as being required by the Work included in this description. Work required under a Bid Package may be shown or specified anywhere in the Contract Documents.

Also Included:

1. Trenching/compaction and backfill Work.
2. Concrete/asphalt patching Work.
3. Removal and reinstallation of window coverings, TV's, VCR's and associated accessories, and storage at an on-site location designated by District.
4. The furnishing/installing of composite aluminum infill panels if penetrations must be made through window system.
5. All demolition and removal and/or replacement of Work associated with this Bid Package.
6. Coordination with other Contractors working on this campus.
7. Perform an electronic underground existing utility survey by a qualified underground utility locator service company in all areas where trenching operations will be performed. An as-built record drawing (one hard copy and one copy on electronic media prepared in AutoCAD 2002 is required to be submitted at the conclusion of the underground scope of Work.
8. Weather protection during the course of construction (See Section 00 72 00, General Conditions).
9. Temporary barricades, signs, pedestrian protection, temporary facilities and traffic control Work.
10. All sealants and required firestopping associated with this Bid Package.
11. All access panels including backing and blocking, associated with this Bid Package.
12. Daily and final clean-up.
13. Asbestos Abatement Work associated with this Bid Package.
14. Lead-Based Paint Surface Preparation Work associated with this Bid Package.
15. Pre-manufactured rooftop curbs for HVAC equipment.
16. All roofing demolition, repair, replacement, roof patching, sheet metal flashing/counter flashing and accessories associated with this Bid Package.
17. Protection, adaptation to new roof system, and re-installation of all existing (E) roof-top piping, conduit, wire, vents, flues, reglets, equipment, curbs, and sleepers during the roof removal/replacement operations.
18. Qualified/certified technicians must perform the replacement and/or repair of all landscape, irrigation, asphalt/concrete surfaces and above or below grade utilities disturbed during construction, and the District must be given the opportunity to test and accept the Work prior to covering up.
19. Patching, repairing, painting and/or replacement of all finished surfaces disturbed during construction.

20. Protection of new and existing roofing from damage.
21. Final testing of all systems installed prior to final acceptance.
22. Qualified/certified C-7 licensed technicians must perform the replacement and/or repair of existing low voltage systems disturbed during construction, and the District must be given the opportunity to test and accept the Work prior to covering up.
23. Provide temporary means of operation for existing storm, water, sewer, gas, mechanical, electrical, and low voltage systems during construction.
24. Provide temporary power via generator(s) to all load sources on the campus if power is not re-established by _____(see schedule milestone – 00 73 00, Article 3).
25. Painting of all new (N) and existing (E) exposed interior and exterior piping, ductwork and raceway systems (other than rooftop piping and raceway systems).
26. A full-time superintendent shall be provided for each modernization project. See Section 00 72 00, General Conditions.
27. Removal, protection, temporary support and reinstallation of all existing (E) exterior building surface mounted wire, cable and raceway systems, necessary to complete the Work. Note: Systems must remain operational during construction operations.
28. Contractor is to perform any necessary out-of-phase Work (see schedule).
29. During a two week period in April, the Contractor cannot perform any work during the morning (A.M.) hours due to student testing.
30. All phases of all work are to be scheduled after school hours except for a five day window (for abatement purposes) per classroom.
31. Contractor is responsible for the protection of books, shelving, furniture and electronic equipment during Work.
32. The use of Constructware is required per Section 01 31 00 for Project Management Internet Communication Requirements.
33. An excess liability policy will be required in the amount of $_____ to cover general and automobile liability insurance. Refer to General Conditions 00 70 00, Article 3.
34. The roof patching shall be compatible with and identical to the existing roofing system. Roof patching shall be performed per manufacturer's and NRCA's written instructions, procedures and details so as not to void any warranties on the existing roofing system. Contractor to submit all materials and procedures to be used for the patching of the roof for review by the architect prior to any roof patching work. Contractor is required to obtain a letter from the existing roofing manufacturer, stating that the patches performed do not void the existing manufacturer's warranty. Existing roof was manufactured by _____**[CONFIRM MANUFACTURER WITH M&O]**.

Excluded:

1. Permits.
2. Fees.

ARTICLE 2: ALTERNATES

Section 2.01 Alternates

Alternate Bids may be accepted at the option of the District. Any combination of Base Bid, Alternates, and Unit Costs determined by the District will be basis for awarding a Contract.

ARTICLE 3: SCHEDULE

Section 3.01 Contract Time/Time for Completion

The time for completion of all Work is **[within ____ calendar days of the Notice of Proceed] or [by insert specific date]**.

Time for completion of milestones is as set forth in the attached Preliminary Construction Schedule. Any extensions of time for completion of milestones are governed by the same terms and restrictions as applicable to extensions of the Contract Time referenced in the General Conditions Section 00 72 00.

Section 3.02 Schedules

The attached Preliminary Construction Schedule indicates planned durations for significant activities during the construction period, including required milestone completion dates. Phasing and milestone completion dates have been prepared to accommodate the Work of this Bid Package and school educational demands. The activities shown assume 100% manpower levels. Mobilization, planning, coordinating layout, gradual manloading, etc. all must occur prior to the activities shown.

Certain phases of the work may be designated as a “Zero Float Phase” in the Preliminary Construction Schedule. Any Zero Float Phase shall have a fixed start and finish date that is not subject to change as a result of delays in other phases or in issuance of the Notice to Proceed for the Project.

The Contractor is required to submit a Contract Schedule for the activities within its scope of Work according to the requirements specified in General Conditions Section 00 72 00, Article 13, Time of Work.

The District will occupy the Site during the entire period of construction for the conduct of normal operations. The Contractor shall cooperate with the District to minimize conflict, and to facilitate the District’s operations. Construction areas will be made available in the order and time frames shown in the Preliminary Construction Schedule.

Schedule the Work to accommodate these requirements.

Section 3.03 Liquidated Damages

In the event of failure on the part of the Contractor to complete each phase of the Work within the Milestone Completion Date, or the overall Project within the Contract Time, including any approved extensions thereof, the Contractor shall pay District, on a phase by phase basis, liquidated damages for each calendar day of delay until final completion of the Phase or the Project. The liquidated damages for each Phase and for the Project are separate, and may be accumulated if completion of more than one Phase is delayed concurrently.

The amount of liquidated damages is indicated below (also refer to General Conditions Section 00 72 00, Article 14, Section 14.05):

$2,000.00/calendar day

ARTICLE 4: DVBE REQUIREMENTS (SFP Funded)

Section 4.01 DVBE Policy For State Allocation Board (SAB) Funded Projects

Definitions:

The term "Disabled Veteran Business Enterprise" (DVBE) means a business concern that is certified as a DVBE by the Department of General Services, Office of Small Business and Disabled Veteran Business Enterprise Services (OSDS).

The term "Contract" means an agreement awarded by the District in which all or part of the funding is provided by the State Allocation Board (SAB) under the Leroy F. Greene School Facilities Act of 1998 (School Facilities Program).

The term "Bidder" means any person or persons, firm, partnership, corporation, or combination thereof making an offer, a proposal, or submitting a response to a solicitation competitively or non-competitively, with the intent of forming a Contract with the District on an SAB-funded project.

The term "Contractor" means the Bidder to whom the Contract is awarded.

The term "Participation Goal" or "Goal" means a numerically expressed DVBE objective that bidders are required to make efforts to achieve in accordance with Section 17076.11 of the Education Code.

The term "Good Faith Efforts" means that the bidder took all necessary and reasonable steps to achieve the DVBE Participation Goal which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DVBE participation, even if they were not fully successful. Good Faith Efforts are further delineated in Section 4.02 below.

DVBE Goals:

In accordance with Education Code section 17076.11, this District has a Participation Goal for DVBEs of at least three percent (3%) per year. This Goal applies to the overall dollar amount of SAB-funds allocated to and expended by the District pursuant to the Leroy F. Greene School Facilities Act of 1998 for construction or modernization of District facilities. Prior to, and as a condition precedent for, final payment under any Contract for such project, the Contractor shall provide appropriate documentation to the District identifying the amount paid to DVBEs in conjunction with the Contract, so that the District can assess its success at meeting this Goal.

A section of the Schedule of Values has been established for monthly reporting on the percentage of DVBE participation. Each month, and at the final application for payment, the Contractor will indicate the percentage of DVBE participation in dollars. This information will be used by the District to report DVBE participation to the SAB.

For any work performed by a prime contractor or subcontractor (including materials suppliers) to be counted toward meeting the DVBE Participation Goal, such business concern must possess current and valid certification as a DVBE through the OSDS. In addition, the work must conform to the most current regulations and requirements as published by the California Department of General Services (DGS) and/or OSDS. For additional information see http://www.dgs.ca.gov/pd/Programs/OSDS.aspx.

Section 4.02 Requirements: Participation Goal and Good Faith Efforts

The Participation Goal for this contract is 3%.

The Bidder shall either commit to meeting the Participation Goal or demonstrate Good Faith Efforts to do so, as described below. If the Bidder is a DVBE, then the Bidder must clearly identify that fact in its bid. **If the Bidder is not a DVBE, then all DVBEs for which the Bidder is claiming credit must be listed on the DVBE listing form and identified as DVBEs.** A bidder may receive credit for using a DVBE even if the work to be performed

is less than one-half of one percent (0.5%) of the bid amount, involves supply of materials, or is to be performed by a lower-tier subcontractor.

Although Good Faith Efforts have been eliminated from Public Contract Code sections 10115 *et seq.*, the District's obligation is separately stated under Education Code section 17076.10, so the District may find a Bidder to have complied with the DVBE requirements if it establishes Good Faith Efforts. In order to establish Good Faith Efforts, the Bidder must demonstrate at least the following:

1. Select portions of the work for which to solicit DVBEs in order to increase the likelihood that the DVBE goals will be achieved. This may include breaking out contract work items into smaller units or soliciting DVBEs for portions of the work that the Bidder might otherwise prefer to perform itself.

2. Search at least the OSDS DVBE database to identify DVBEs to solicit to perform the portions of work identified. Print the search results to include with the Good Faith Efforts documentation.

3. Advertise for DVBE participation, including in focus or trade publications reasonably expected to reach DVBEs in the region, as early in the process as is practicable. Depending on the project and results, multiple advertisements may be appropriate. Generally, the first publication should occur no later than one week following any pre-bid conference or one week before bids are due, **whichever is earlier.** Submit a copy of the advertisement(s) with the Good Faith Efforts documentation.

4. Solicit interest from identified DVBEs (from the OSDS database or otherwise) as early in the bidding process as practicable to allow the DVBEs to respond to the solicitation and submit a timely bid. Solicitations may be by phone, fax, email, letter, or other reasonable means, but must be documented. Submit documentation of all outreach efforts with the Good Faith Efforts documentation. Include documentation of all DVBE responses.

5. Follow up initial solicitations. Document all such efforts and DVBE responses as part of the Good Faith Efforts documentation.

6. Work with interested DVBEs, including providing adequate information about the project and portions of work available and negotiating in good faith with interested DVBEs to assist them with being able to bid. Document all such efforts with the Good Faith Efforts documentation.

All documentation of Good Faith Efforts must be submitted within 24 hours following the bid deadline. Documentation submitted after that time will not be considered.

Bidders planning to meet the Participation Goal may still want to document Good Faith Efforts in the event of a shortfall in planned DVBE participation or other disqualification of a listed DVBE.

Section 4.03 Substitutions

The Contractor must use the DVBE Subcontractor(s) and/or supplier(s) proposed unless the Contractor requests and receives authorization from the District to substitute. At a minimum, the request must include:

1. A written explanation of the reason for the substitution, which shall be limited to the circumstances permitted under Public Contract Code section 4107(a).;

2. The identity of the listed DVBE and the name, address, contractor license number, and DIR registration number of the proposed replacement; and

3. If a DVBE cannot be identified as a replacement, documentation of efforts to find available DVBEs.

The DVBE shall be given the rights afforded by Public Contract Code section 4107 prior to the District acting on a requested substitution.

FAILURE TO ADHERE TO AT LEAST THE DVBE PARTICIPATION PROPOSED BY THE SUCCESSFUL BIDDER MAY BE CAUSE FOR CONTRACT TERMINATION AND RECOVERY OF DAMAGES UNDER THE RIGHTS AND REMEDIES DUE THE DISTRICT/STATE UNDER THE DEFAULT SECTION OF THE CONTRACT.

Section 4.04 DVBE Certification

A DVBE cannot self-certify. An OSDS letter must be provided for each DVBE participating in the contract. The OSDS certification letter must be provided with the bid. The District will not give the Bidder DVBE credit for any DVBE for which the Bidder fails to provide the required letter with its bid.

Section 4.05 Contract Audits

The Contractor agrees that the State or the District has the right to review, obtain, and copy all records pertaining to performance of the Contract. The Contractor agrees to provide the State with access to its premises upon reasonable notice for purposes of interviewing employees and inspecting records. The Contractor shall maintain records for a period of at least three (3) years after final payment under the Contract.

SUBCONTRACTOR LISTING FORM

SUBCONTRACTORS FOR _____ [Bidder] PROJECT: _____

Pursuant to the requirements of the Instructions to Bidders for the Project, the above-named Bidder hereby designates below the names, contractor license numbers, DIR registration numbers, and locations of the place of business of subcontractors and the portion of work to be performed by the Subcontractor. Where not all work will be performed by a single subcontractor, Bidder may designate "partial" and further define the portion of the work to be performed. Listed subcontractors shall be entitled to the protections of Public Contract Code sections 4100 to 4114.

PORTION OF WORK	NAME OF SUBCONTRACTOR	CONTRACTOR LICENSE NUMBER	DIR NUMBER	DVBE [Y/N]	LOCATION OF BUSINESS

DISABLED VETERAN BUSINESS ENTERPRISE LISTING FORM

DVBEs FOR _____ [Bidder] PROJECT: _____

NAME OF DVBE	DOLLAR VALUE OF WORK	PORTION OF WORK	CONTRACTOR LICENSE NUMBER	DIR NUMBER	LOCATION OF BUSINESS

Total DVBE participation achieved: _____%

Bidder (mark the appropriate box or boxes):

- ☐ Is a certified DVBE.
- ☐ Will meet the stated DVBE participation goal and has listed all DVBEs above.
- ☐ Will submit Good Faith Efforts documentation to reflect its efforts to secure DVBE participation.

Good Faith Effort Checklist

The following checklist is provided to assist bidders in compiling their good faith efforts documentation. Bidders are encouraged, but not required, to submit the checklist with their documentation. Bidders should not consider the following checklist to identify all actions that can or must be taken to establish good faith efforts, which will depend on the circumstances encountered by the bidder. Bidders should explain any circumstances that they want the District to consider in evaluating the good faith efforts.

Item #	Description	Items Attached
1.	Identify portions of work for which DVBEs were solicited (can be done below).	☐
2.	Provide copies of printed search results from California Office of Small Business & Disabled Veterans' (OSDS) DVBE Database **Recommendation:** If the bidder does not solicit substantially all of the DVBEs identified on the printout(s), explain how the bidder selected the DVBEs to solicit.	☐
3.	Provide copies of DVBE Advertisements	☐
4.	Provide copies of all solicitation efforts including phone calls, fax, email, letter or other reasonable means, as well as all responses. **Recommendation:** If significant numbers of the solicited DVBEs cannot be reached or indicate that they do not intend to bid, then the bidder is encouraged to identify additional DVBEs to solicit for participation.	☐
5.	Provide copies of follow-up to initial solicitations and all responses. Identify the date, time, and manner of the follow-up and any responses received. **Recommendation:** If significant numbers of the solicited DVBEs cannot be reached or indicate that they do not intend to bid, then the bidder is encouraged to identify additional DVBEs to solicit for participation.	☐
6.	If the bidder worked with interested DVBEs, describe all such efforts.	☐
7.	Describe any additional circumstances that the bidder wants the District to consider in evaluating good faith efforts, including any additional actions taken to secure DVBE participation.	☐

Section 01 21 13 – CASH ALLOWANCES

PART 1 - GENERAL

1.01 SUMMARY

A. To provide adequate budget and bonding to cover scope of work not precisely determined by the Contract Documents prior to bidding, allow within the proposed Contract Sum the amounts described in the Proposal Form. All unused portions of the allowance will be deducted from the Contract through a Change Order.

B. Related Work:
1. Documents affecting work of this Section include, but are not limited to, Bidding and Contract Requirements, General Requirements and related Technical Requirements.
2. Other provisions concerning Cash Allowances are stated in Specification Section 00 42 00, Proposal Form.
3. Other provisions concerning Cash Allowances also may be stated in other sections of the Project Manual.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

Section 01 31 00 - PROJECT MANAGEMENT INTERNET COMMUNICATION REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. All Contract Documents, including General Conditions, Supplementary Conditions, and other Division 1 - General Requirements, apply to the work of this section.

B. This section contains general information that applies to all work performed under the Contract, and is made inherently a part of each specification section.

1.02 GENERAL PROJECT MANAGEMENT OBJECTIVES

A. Sacramento City Unified School District (SCUSD) has directed its Contractor to use the project's existing Internet/Web-based project management software to track and manage the project.

B. Use of this project management software will not replace or change any contractual responsibilities of the construction team members.

C. Each project team member of the Contractor: Superintendent, Project Engineer, Scheduler, and Project Manager, et al., shall have access to the Internet and an Internet e-mail address in order to communicate with various project team members. The Contractor shall provide immediately upon receipt of the Notice to Proceed confirmation of these conditions and the names, positions, and e-mail addresses to SCUSD's Representative.

1.03 SOFTWARE AND HARDWARE REQUIREMENTS

A. The Contractor is required to provide at both the field office and home office location from where this project is managed computer hardware and software that meet the requirements of Constructware® project management software, developed by Emerging Solutions, Inc. of Alpharetta, GA. The Contractor is not required to purchase Constructware® software, only the hardware and software required to access this system via the Internet. SCUSD will provide the Contractor with one (1) user license to use the existing project database for the duration of the bid package project. The Contractor shall pay Constructware® directly for any additional licenses needed to use the database. Contractor's licenses to the SCUSD Constructware® database will permit access only to this project, in accordance with permission levels configured by SCUSD's Constructware® administrator.

B. SCUSD shall provide the Contractor with Constructware® training (if required). SCUSD will provide training for up to 5 Contractor staff members. Contractor's Project Manager, Superintendent and main Construction Administration staff are required to attend training sessions.

C. The Contractor shall provide an adequate number of users to properly manage the project in accordance with the Project Timetable. The Contractor shall have Internet access through an Internet service provider of his/her choice.

D. Software requirements are as follows:

- Internet Explorer or Safari is recommended.

E. Hardware requirements are as follows:

- Workstation, laptop or tablet
- .
- A connection to the Internet

F. More information on Constructware® may be obtained via the World Wide Web, at www.*constructware.com.*

1.04 SYSTEM MANAGEMENT AND USE

A. SCUSD will administer the Constructware® user account.

B. All costs associated with using this system, including computer hardware, internet service, and additional licenses beyond the one to use the existing project database are the responsibility of the Contractor.

1.05 COMMUNICATION PROCESS

A. SCUSD's Representative will outline and detail communication, correspondence and coordination procedures at Project start meeting.

B. Most project communication will take place in the Constructware® project management system by creating and distributing documents directly within the system, or by entering manually in the system dates and descriptions of items to track over time. All documents requiring formal signatures will be printed, and their hard copies signed and distributed.

C. The official submittal log will be maintained within Constructware®. The Contractor will use Constructware® to upload their submittals using a bookmarked PDF file enabling navigation to each item within the submittal package. The Constructware® project management system will be used to track and expedite processing of these items.

D. Contractor will be required to utilize modules including but not limited to: messaging, daily reports; meeting minutes; punch lists; requests for information (RFI); change requests; and payment applications (including Schedule of Values) within the Constructware® project management system. The Contractor can enter an RFI and the Architect/Engineer respond to the RFI completely within the Constructware® project management system without creating a hard copy. Support documentation in hard copy format for any document in Constructware® may be scanned into an electronic file and attached in Constructware® to documents.

E. Contractors are required to furnish and use a digital camera in order to photo-document job progress and upload the associated images taken on a regular basis to the internet site. Each daily report should be accompanied by a daily progress photo. The daily report should be entered into Constructware daily but in no event later than once per week. Contractor must lock daily reports within a week after occurrence.

PART 2 – PRODUCTS

2.01 Extranet application service provider shall be the following (no substitution)
Constructware® as provided by:
Autodesk
www.constructware.com

PART 3 – EXECUTION

3.01 Constructware® is an Internet-Accessed Centralized Database of project information and consists of several separate modules or master file divisions for ease of organization. Available file divisions include but are not limited to: Correspondence, Daily Reports, RFIs, Transmittals, Submittals, Meetings, Documents, Drawings, Specifications, Punch Lists, Reports, Project Team, Schedule of Values, Change Items, Request for Proposals, etc.

3.02 Contractor shall be provided with one (1) user licenses for Constructware® (ASP) by SCUSD. Each major team member for the contractor (i.e. project manager, superintendent, etc.) must have a separate user license. The Contractor shall insure that all major team members on this project have Internet access available during the duration of this project.

3.03 Subcontractors and suppliers will be able to utilize email or fax for submission of documents to the Contractor.

END OF SECTION

Section 01 31 19 - PROJECT MEETINGS & PROCEDURES

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. The District Representative will schedule and administer a preconstruction meeting, regular progress meetings, and specially called meetings throughout progress of the Work, and will:

1. Prepare agenda for meetings.
2. Make physical arrangements for meetings.
3. Preside at meetings.
4. Record the minutes; include significant proceedings and decisions.
5. Reproduce and distribute copies of minutes after each meeting to participants in the meeting and to parties affected by decisions made at meeting.

B. Representatives of Contractor, Subcontractors and suppliers attending meetings shall be experienced supervisory staff with written authorization to act on behalf of the entity each represents.

1.02 PRECONSTRUCTION MEETING

A. Timing: Prior to start of construction.

B. Attendance: Architect and consultants as appropriate, District Representative, Contractor, Project Inspector and Subcontractors when required by District to attend.

C. Purpose: Discuss and familiarize Contractors with construction administrative procedures to be used on the Project.

1.03 PROGRESS MEETINGS

A. Timing: Frequency, day and time to be determined by the District Representative, Architect and District.

B. Attendance: District Representative and each contractor on site; Architect, consultants, Project Inspector, and Subcontractors when required.

C. Purpose: The purpose of these meetings is to provide a formal and regular forum for the District, District Representative, Architect/Engineer and the Contractors to present questions, problems or issues that need to be addressed. It will also provide an opportunity to review the progress on previous issues and action items along with submittal and schedule review.

D. Each Contractor scheduled to commence Work within the following week will attend the current week's meeting to coordinate Work with other contractors already on site.

1.04 SPECIALLY CALLED MEETINGS

A. The District Representative may call a special meeting at any time during the course of the Project. Special Project meetings shall include representatives of the Project as requested in order to discuss problems and/or solutions that are common to the Project.

END OF SECTION

Section 01 35 16 - ALTERATION PROJECT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Products and installation for patching and extending Work.

B. Transition and adjustments.

C. Repair of damaged surfaces, finishes, and cleaning.

D. Salvage materials.

1.02 RELATED SECTIONS

A. Section 01 73 29 - Cutting and Patching.

B. Section 02 41 00 - Minor Demolition for Remodeling.

1.03 ALTERATIONS, CUTTING AND PROTECTION

A. Assign the work of moving, removal, cutting and patching, to trades qualified to perform the work in manner to cause least damage to each type of work, and provide means of returning surfaces to appearance of new work.

B. Perform cutting and removal work to remove minimum necessary, and in a manner to avoid damage to adjacent work.

1. Cut finish surfaces such as concrete, masonry, drywall, plaster or metals, by methods to terminate surfaces in a straight line at a natural point of division, or where indicated.

C. Protect existing finishes, equipment, and adjacent work, which are scheduled to remain, from damage.

1. Protect existing and new' work from extremes of temperature.
   a. Maintain existing Interior work above 60 degrees F
   b. Provide heat and humidity control as needed to prevent damage to remaining existing work and to new work.

D. Provide temporary enclosures to separate work areas from existing building and from areas occupied by the District.

PART 2 PRODUCTS

2.01 PRODUCTS FOR PATCHING AND EXTENDING WORK

A. New Materials. As specified in product Sections; match new materials to existing work.

1. Provide same products or types of construction as that in existing structure, as needed to patch, extend or match existing work.

2. Presence of a product, finish, or type of construction, requires that patching, extending or matching shall be performed consistent to, or better than, existing standards of quality.

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

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that demolition is complete, and areas are ready for installation of new Work.

B. Beginning of restoration Work means acceptance of existing conditions.

3.02 PREPARATION

A. Cut, move, or remove items as necessary for access to alterations and/or renovation Work. Replace and restore at completion. The full extent of cutting and patching is not shown or specified. The Contractor shall perform all cutting and patching as required.

B. Remove unsuitable material not marked for salvage, such as rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.

C. Remove debris and abandoned items from area and from concealed spaces.

D. Prepare surface and remove surface finishes to provide for proper installation of new work and finishes.

3.03 INSTALLATION

A. Coordinate work of alterations and renovations to expedite completion and to accommodate District occupancy. Patch and extend existing work using skilled mechanics that are capable of matching existing quality of workmanship. Quality of patched or extended work shall be not less than that Specified for new work.

B. Room Finishes. Complete in all respects consistent with the Contract Documents.

C. Remove, cut, and patch Work in a manner to minimize damage and to provide a means of restoring Products and finishes to specified condition.

D. Install Products as specified In Individual Sections.

3.04 TRANSITIONS

A. Where new Work abuts or aligns with existing, perform a smooth and even transition.

B. Patch Work to match existing adjacent Work in texture and appearance, without breaks, steps or bulkheads.

C. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.

3.05 ADJUSTMENTS

A. Where change of plane of 1/4 inch or more occurs, submit recommendation for providing a smooth transition.

B. Where extreme change of plane of two inches or more occurs, request Instructions from Architect as to method of making transition.

C. Trim existing doors as necessary to clear new threshold Installation. Refinish trim as required.

D. Fit work at penetrations of surfaces as shown on drawings.

3.06 SALVAGED MATERIALS

A. Salvaged Materials from existing facilities, which are specified in the Special Provisions, identified in bid doc's or tagged in the field are to be salvaged and shall remain the property of the District. The Contractor shall include the removal, disassembly, preparation, marking, bundling, packaging, tagging, hauling, and stockpiling of salvaged materials or facilities to the location specified in the Special Provisions, or as directed by the District Representative. Materials include, but are not limited toparts, articles, and equipment of assembled facilities. Salvaging does not include the preparation of existing material that is to be reused in the work.

B. When only specific materials from the facility are designated to be salvaged, the remaining materials from that facility shall be removed and disposed of as provided for elsewhere in the Contract Documents. Materials to be salvaged shall not be removed until their use in the existing facility is no longer required, as determined by the District Representative.

C. When practicable, salvaged materials shall be hauled directly to the location specified in the Special Provisions and stockpiled; however, salvaged materials may be temporarily stored at a location selected by the Contractor and approved by the District Representative and later hauled to and stockpiled at their final location. Materials which are lost before stockpiling at their final location shall either be replaced by the Contractor, at the Contractor's expense, or, at the discretion of the District Representative, the estimated cost of replacement may be deducted from any moneys due or to become due to the Contractor.

D. Materials designated to be salvaged that are damaged, as determined by the District Representative, shall be segregated from undamaged material. After review of the damaged materials by the District Representative, all damaged materials that are rejected by the Districts Representative shall become the property of the Contractor and shall be disposed of as provided elsewhere in the Contract Documents.

E. Materials to be salvaged that are damaged as a result of the Contractor's operations shall be repaired by the Contractor, at the Contractor's expense, to the satisfaction of the District Representative. Materials that are damaged beyond repair as a result of the Contractor's operations shall be disposed of as provided elsewhere in the Contract Documents and replaced at the Contractor's expense; or, at the discretion of the District Representative, the estimated cost of replacement may be deducted from any moneys due or to become due to the Contractor.

F. Replacements for lost or damaged materials shall be of the same kind and of the same or better quality and condition as the lost or damaged materials were prior to their removal. Replacement materials should also be of the same size, color, weight etc. of the original materials. Matching or exceeding quality and condition alone may not permit the reuse of material.

3.07 REPAIR OF DAMAGED SURFACES

A. Patch or replace portions of existing surfaces, which are damaged, lifted, discolored, or showing other imperfections.

B. Repair substrate prior to patching finish.

3.08 FINISHES

A. Finish surfaces as specified in Individual Product Sections.

B. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest Intersections.

C. Unless otherwise specified or shown, subsurfaces shall be prepared as recommended by finish material manufacturers for project conditions for the proper application of new finishes.

3.09 CLEANING

A. Clean adjacent Owner occupied areas of work soiled by work of this contract (See General Conditions Section 00 72 00, Article 19).

END OF SECTION

Section 01 41 00 - ADDITIONAL REQUIREMENTS FOR DSA-REVIEWED PROJECTS

PART 1 - GENERAL

1.01 GENERAL

A The following additional requirements apply to this Project, which is being reviewed by the Division of the State Architect (DSA).

B. Contractor's responsibility to follow DSA IR A-24 and PR 13-01 throughout the project.

1.02 ADDITIONAL REQUIREMENTS

A. The Contractor shall maintain full compliance with the requirements specified in Parts 1 thru 5 and Part 9, Title 24, California Code of Regulations (CCR). Unless otherwise indicated or specified, work shall be performed in full conformance with the latest edition of applicable regulatory requirements. All work shall be performed in accordance with the rules and regulations, Title 24, Parts 1-5 and Part 9, California Code of Regulations, and Division of the State Architect, and a copy shall be kept on the job at all times during construction. The codes adopted by the City, County, State and Federal agencies shall govern minimum requirements for this Project. The Contractor shall notify the District of any conflicts between the requirements of the Contract Documents and the requirements of this paragraph.

B. In addition to the duties specified in the Contract Documents, the duties of the Contractor shall be in accordance with the requirements specified in Section 4-343 of Part 1, Title 24, California Code of Regulations (CCR).

C. In addition to the duties specified in the Contract Documents, the duties of the Architect and the Architect's consultants shall be in accordance with the requirements specified in Section 4-341 of Part 1, Title 24, CCR.

D. Neither DSA, nor the decisions and instructions rendered by DSA, are subject to arbitration proceedings.

E. Architect shall notify DSA at start of construction in accordance with 4-341 of Part 1, Title 24, CCR.

F. All Addenda and applicable Contract Change Documents (CCD) shall be signed by the District and approved by the Architect. All Addenda and Construction Change Documents are to be submitted for DSA approval. Do not begin work under a written order until the Construction Change Document(s) that requires DSA approval have been submitted to and approved by DSA in accordance with California Administrative Code Section 4-338(c) **of Part 1, Title 24, CCR.**

G. If DSA approval is required for Proposed Construction Changes, it will be so noted on the Construction Change Directive and Change Order (For District use only) and the Construction Change Document(s) sent for DSA approval. In such cases, do not begin work under a written order until the Construction Changes have been submitted to and approved by DSA in accordance with California Administrative Code Section 4-338 (c) of Part 1, Title 24, CCR and DSA IR A-6. Substitutions are changes to the Contract Documents and shall be considered Construction Changes, and, if DSA approval is required, shall be approved by DSA prior to fabrication or use.

H. Contractor shall submit verified reports in accordance with Sections 4-343(c) of Part 1, Title 24, CCR. Architect shall submit verified reports in accordance with Sections 4-341(f) of Part 1, Title 24, CCR.

I. DSA may supervise construction, reconstruction, or repair in accordance with Section 4-334 of Part 1, Title 24, CCR.

J. Construction shall be observed by a full-time Project Inspector employed by the District, approved by the Architect, Structural Engineer and DSA in accordance with Sections 4-333(b) and 4-342 of Part 1, Title 24, CCR.

K. Testing requirements of the District's Testing Laboratory shall be in accordance with Section 4-335 of Part 1, Title 24, CCR.

L. Special inspection of masonry construction, glued laminated lumber, wood framing using timber connections, ready-mixed concrete, high strength steel bolt installation, welding, and mechanical and electrical work shall be as required by Section 4-333(c) of Part 1, Title 24, CCR. The costs of special inspection will be paid for by the District. Nothing in this paragraph shall limit the District's rights under Articles 9 or 17 of Section 00 72 00 General Conditions.

M. The intent of these Drawings and Specifications is that the work of the alteration, rehabilitation or reconstruction is to be in accordance with Title 24, California Code of Regulations. Should any existing conditions such as deterioration or non-complying construction be discovered which is not covered by the Contract Documents wherein the finished work will not comply with Title 24, California Code of Regulations, a construction change document, or separate set of plans and specifications, detailing and specifying the required work shall be submitted to and approved by DSA before proceeding with the work.

N. Substitutions relating to structural, Fire-Life-Safety (FLS), and access shall be submitted to DSA for review and approval prior to fabrication and installation.

END OF SECTION

Section 01 45 00 - QUALITY CONTROL

PART 1- GENERAL

1.01 SECTION INCLUDES

A. Quality assurance and control of installation.

B. References.

C. Field samples.

D. Mock-up.

E. Inspection and testing laboratory services.

F. Manufacturers' field services and reports.

1.02 RELATED SECTIONS

A. Section 00 72 00-General Conditions, Article 11- Submittals

B. Technical Specifications

1.03 QUALITY ASSURANCE/CONTROL OF INSTALLATION

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

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

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

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

E. Perform work by persons qualified to produce workmanship of specified quality.

F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

G. Contractor’s Line of Authority: Contractor shall provide one person who shall be both knowledgeable and responsible for all work to be performed on this project at all times during normal work hours. In Contractors absence, Contractors appointed representative shall be responsible for all directions given him/her and said directions shall be binding as if given to the Contractor. Contractor’s representative shall be responsible to coordinate all work to be performed.

H. Shop and fieldwork shall be performed by mechanics skilled and experienced in the fabrication and installation of the work involved. All work on this project shall be done in accordance with the best practices of the various trades involved and in accordance with the drawings, approved shop drawings and these specifications.

I. All work shall be erected and installed plumb, level, square and true and in proper alignment and relationship to the work of other trades. All finished work shall be free from defects. The Architect, Engineer, District and its representatives reserves the right to reject any materials and workmanship which are not considered to be up to the highest standards of the various trades involved. Such Inferior material or workmanship shall be replaced by the Contractor at no additional cost to the District and without an extension of the Contract Time.

J. All work shall be installed by a knowledgeable contractor and defined "certified to install" by the specified materials manufacturers. The specifications and recommendations of the manufacturer whose materials are used shall be strictly adhered to during the application or installation of materials.

K. Any additional work beyond that specified or illustrated, or any modification thereto, that is necessary for the furnishing of guarantee shall be provided by the Contractor without additional cost to the District.

1.04 REFERENCES

A. Conform to reference standards by date of issue current on date of the Contract Documents.

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

C. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

D. The Contractor shall be responsible for being current and knowledgeable of all building codes involved for all trades under his direction.

E. Provide all work and materials in full accordance with the California Building Standards Administrative Code, the California Building Code (CBC), California Electrical Code (CEC), California Mechanical Code (CMC), California Plumbing Code (CPC), California Energy Code, California Fire Code (CFC), California Referenced Standards, State Fire Marshal Regulations, Cal/OSHA, and any other applicable laws or regulations. Nothing in these plans or specifications is to be construed to permit work not conforming to these Codes

F. Furnish without extra charge any additional material and labor required to comply with these Rules and Regulations.

1.05 FIELD SAMPLES

A. Install field samples at the site as required by individual specifications Sections for review.

B. Acceptable samples represent a quality level for the Work.

C. Where field sample is specified in Individual Sections to be removed, clear area after field sample has been accepted by Architect.

1.06 MOCK-UP

A. Assemble and erect specified items, with specified attachment and anchorage devices, flashings, seals, and finishes.

B. Where mock-up is specified in Individual Sections to be removed, clear area after mock-up has been accepted by Architect.

1.07 INSPECTION AND TESTING LABORATORY SERVICES

A. The District will appoint, employ, and pay for services of an independent firm approved by the Structural Engineer, Architect and Division of the State Architect (DSA) to perform special inspection and testing.

B. The Independent firm will perform special inspections, tests, and other services specified in Individual specification Sections and as required by the Architect.

C. Reports will be submitted by the independent firm to the Architect, Owner and DSA, indicating observations and results of tests and indicating compliance or noncompliance with Contract Documents.

D. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
1. Notify Architect and independent firm 24 hours prior to expected time for operations requiring services.
2. Make arrangements with independent firm and pay for additional samples and tests required for Contractors use.

E. The special inspector shall perform inspection of all work to determine conformance with these Standards.
1. Request for inspection must be made to the office of the special inspector a minimum of 24 hours in advance of the time the inspection is desired.
2. Underground work shall not be backfilled or covered until an inspection by the special inspector or his representative has been completed and the work approved. Any work that is covered without inspection shall be uncovered at the Contractors expense so an inspection can be made.
3. The Engineer shall have access to the work at all times and shall be furnished every reasonable facility for ascertaining that the work done, materials used and workmanship performed are in accordance with the requirements of these Standards.
4. Inspection of the work shall not relieve the Contractor of any of its obligations to satisfactorily perform the work.

F. Re-testing required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Architect. Payment for re-testing will be charged to the Contractor by deducting inspection or testing charges from the Contract Price.

G. An Inspector of record shall be employed by The District and approved by Architect, Structural Engineer, and DSA.

1.08 MANUFACTURERS' FIELD SERVICES AND REPORTS

A. Submit qualifications of observer to Architect 30 days in advance of required observations.

B. When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance of equipment as applicable, and to initiate instructions when necessary.

C. Individuals to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

D. Submit report in duplicate within 30 days of observation to Architect for review.

PART 2 - PRODUCTS - Not Used
PART 3 - EXECUTION - Not Used

END OF SECTION

Section 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

ARTICLE 1. GENERAL

SECTION 1.01 WORK INCLUDED

Temporary Facilities and controls required for this Work include, but are not necessarily limited to:

1. Temporary water, power, light, and heat.
2. Field office and associated telephone and utilities.
3. Temporary weather protection.
4. Parking and storage areas.
5. Site fencing and security.
6. Sanitary facilities.
7. Dewatering.
8. Storm Water Run-Off Plan Compliance
9. Final and course of construction cleanup and removal of debris.
10. Erosion Control.
11. Emergency power and water shut-off.

SECTION 1.02 TEMPORARY UTILITIES

General: Charges for the use of utility services other than those associated with individual field offices or planned electrical service interruptions will be paid for by the District. Each Contractor shall provide temporary heating, or ventilating, or cooling when permanent services are interrupted due to performance of their Work. Each Contractor shall provide temporary means of operation for existing storm, water, sewer, gas, mechanical, electrical, and low voltage systems during construction. Any planned interruption of permanent services, facilities, or operations must be coordinated and approved in advance with the District Representative.

Temporary Power:
Each Contractor shall construct all temporary power facilities required to complete Bid Package scope of Work and maintain in accordance with Division of Industrial Safety "Electrical Safety Orders" (ESO), Public Utilities Commission "Rules of Overhead Line Construction" (G.O. 95), and CAL-OSHA. Materials, devices and equipment used for these facilities shall be in good and safe condition but need not be new. Contractor is responsible for the removal of the temporary power. Existing school electric outlets may be utilized, if permitted by the District and authorized by the District Representative. Any additional power required shall be provided and paid for by the contractor.

Temporary Lighting:
Each Contractor shall provide, maintain, and remove temporary lighting necessary to complete the Bid Package Scope of Work.

Temporary Heat:
Each Contractor shall provide, maintain, and remove temporary heat necessary to complete Bid Package Scope of Work.

Temporary Water:
Each Contractor shall provide sufficient hose to carry water to every required part of construction and allow use of water facilities to Subcontractors engaged in Work. Contractor is also responsible for the removal of the temporary water. Existing school water outlets may be utilized. Any additional water required shall be provided by the Contractor.

Temporary Telephone:
Each Contractor shall provide their own telephone system. Use of District telephones will not be allowed.

Temporary Fire Protection:
Each Contractor shall provide and maintain fire extinguishers and first aid kits in accordance with OSHA requirements to be used in the event of an emergency.

Temporary Weather Protection:
Each Contractor shall provide and maintain protection measures and Best Management Practices to ensure that damage(s) will not occur to District property during course of construction and protect the District from State Water Resources Control Board actions.

Temporary Dewatering:
Each Contractor shall provide and maintain a dewatering system as required to perform its/their Work. This temporary dewatering system may, and should, be reviewed by the Architect and/or the District Representative.

SECTION 1.03 FIELD OFFICE/STORAGE CONTAINERS

If desired, the Contractor may provide a temporary field office(s) or storage container(s). Locate field office(s)/storage container(s) as directed by the District Representative. Upon completion of Work, Contractor shall remove any and all temporary field office(s) and storage container(s).

SECTION 1.04 PARKING OF VEHICLES

Each Contractor shall assume **all** responsibility for job site vehicle parking of his and his Subcontractor's vehicles. Locations of parking shall be as directed by the District Representative. School sites may not accommodate on-site parking of construction personnel vehicles. Contractor shall assure compliance with all applicable requirements for on-street vehicle parking.

SECTION 1.05 STORAGE AND LAYDOWN AREAS

The District Representative will coordinate use of available laydown areas among various contractors. Only areas designated by the District Representative can be used by Contractors. Each contractor is responsible for providing his own fenced storage facilities (trailers or cargo containers.)

SECTION 1.06 TEMPORARY SITE FENCING AND SECURITY

Each Contractor shall provide and maintain temporary fencing surrounding the buildings and/or rooms under construction, and staging areas. Set-up/relocation of temporary fencing shall be included for each phase of work as shown on the Preliminary Construction Schedule. Contractor is responsible for the security of all equipment, material, and completed construction items. Contractor is also responsible for securing any breeches to existing security system/building caused by his Work. Temporary measures may include watchman, temporary doors, temporary alarm, etc.

SECTION 1.07 SANITARY FACILITIES

Each Contractor shall provide sanitary toilet facilities for use of all Workers employed on Project, in accordance with State and Local health departments. Use of District toilet facilities will not be allowed.

SECTION 1.08 CLEAN UP AND REMOVAL OF DEBRIS

Each Contractor shall assume all responsibility for cleanup and removal of debris created by his Scope of Work on a daily basis. No community dumpsters will be provided. In the event unidentifiable job site clutter or debris becomes a problem, at the District Representative's request, each contractor shall provide sufficient labor to be directed by the District Representative's personnel in a group cleanup effort. If a Contractor’s clean-up is found to be deficient, the District may backcharge the Contractor for clean-up and/or withhold progress payments as determined appropriate by the District in accordance with Section 12.06, Para E, General Conditions Section 00 72 00.

SECTION 1.09 TEMPORARY CONSTRUCTION, EQUIPMENT AND PROTECTION

Contractor shall provide, maintain and remove upon completion of Work, all temporary rigging, scaffolding, hoisting equipment, rubbish chutes, ladders, barricades, lights and all other protective structures or devices necessary for safety of Workers and public property as required to complete the Bid Package Scope of Work.

Safety: The contractor is responsible for the complete safety of district personnel, students, and the general public at all times.

Walkways and barricades: If Contractor's portion of Work interferes with pedestrian traffic, provide pedestrian walkway protection conforming to City standards and CAL OSHA requirements.

Access: The contractor is responsible to maintain access to the buildings at all times. Temporary covered walkways and/or barricades may be required.

Protection: Each Contractor must protect all Workers and equipment from power lines by maintaining safe distances and by providing protective devices where and as required by Industrial Safety Commission and CAL-OSHA.

Temporary construction and equipment: All temporary construction and equipment shall conform to all regulations, ordinances, laws and other requirements of State and any other authorities having jurisdiction (including insurance companies), with regards to safety precautions, operations and fire hazards.

SECTION 1.10 EROSION CONTROL

If any soil will be disturbed as part of the scope or course of work, the Contractor must protect disturbed area from erosion and protect the storm drain system from contamination.

- For projects requiring a SWPPP based on State Water Resource Control Board (SWRCB) requirements a SWPPP will be provided by the District unless otherwise stated in the project documents. Projects available for an Erosivity Waiver will have such filed by the District unless otherwise stated in the project documents. All projects, whether under the control of a SWPPP or not shall maintain Best Management Practices to ensure the limiting of erosion and sedimentation. Under no circumstances shall sediment be allowed to leave the project site.
- The contractor shall retain a Qualified SWPPP Practitioner (QSP) to inspect the construction site to ensure compliance with the SWPPP and SWRCB requirements. The Contractor shall implement all measures required by the QSP.
- During the course of the Contract the Contractor shall file all necessary documentation with the SWRCB. At the completion of the contract the Contract the Contractor shall file a Notice of Termination with the SWRCB and provide documentation of such to the District.

SECTION 1.11 EMERGENCY POWER AND WATER SHUT-OFF

The Contractor is responsible to know where all water and power shut-off devices are located and to have the proper tools to operate shut-off valves. The Contractor shall post a site map in a location readily available to workers.

SECTION 1.12 STORM WATER RUN-OFF PLAN:
Not Applicable.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

Section 01 71 23 - FIELD ENGINEERING & SURVEY CONTROLS

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Contractor to provide and pay for field engineering services required for the execution of Work, including, but not limited to:

1. Survey Work required in execution of the Bid Package Work scope.
2. Civil, structural or other professional engineering services specified, or required to execute Contractor's construction methods.

B. Provide field staking of site improvements included in Bid Package; identify existing survey reference points and property line corner stakes indicated on Drawings.

C. Locate and be aware of all existing on-site utility lines and improvements.

1.02 QUALIFICATIONS OF SURVEYOR OR ENGINEER

A. Qualified California registered professional engineer or registered land surveyor, acceptable to Contractor and the District Representative.

B. Registered professional engineer of discipline required for specific service on Project, licensed in State of California.

1.03 SUBMITTALS:

A. Submit name, address, and license of surveyor and professional engineer to the District Representative.

1.04 PROJECT SURVEY REQUIREMENTS

A. Establish and maintain lines and levels as necessary to locate and layout entire scope of Work in Bid Package.

B. Preserve and protect all on-site underground utilities lines and existing on-site improvements in the area of construction.

END OF SECTION

Section 01 73 29 - CUTTING AND PATCHING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Execute cutting, fitting or patching of Work, required to:
   1. Make parts fit properly.
   2. Uncover Work to provide for installation of ill-timed Work.
   3. Remove and replace Work not conforming to requirements of Contract Documents.
   4. Remove and replace defective Work.
   5. Remove samples of installed Work as specified for testing.
   6. Remove existing materials (demolition) required prior to installation of specified Work.
   7. Uncover Work to provide for Architect's observation of covered Work.

B. Do not endanger structural integrity of any Work by cutting or altering any part of it.

C. The Contractors with structural responsibility within their scope of Work shall solely execute structural cutting and patching required for this Project, according to DSA Approved Drawings.

D. Minor cutting and patching of finishes and/or trim will be performed by the Contractor where required for the execution of his Work. Locations of all cutting and patching (core boring, etc.) shall be reviewed and approved by the Architect prior to the start of Work.

E. The Contractor shall make the field measurements necessary for its Work and be responsible for its accuracy. Also, should any structural difficulties prevent a Contractor from installing its material properly, the District Representative and Architect shall be notified in writing within 24 hours. Cutting into the walls, ceilings and floors, if necessary, shall be carefully and neatly performed and then be repaired as specified in the Contract Documents. The Architect shall be consulted prior to the start of Work in all cases where cutting into a structural portion of the building is either desirable or necessary so that satisfactory reinforcement may be provided.

F. Patching of all exposed architectural finishes shall be performed under the supervision of the Inspector. Cutting and patching of existing architectural finishes shall be minimized to the extent possible through careful routing and placement of new Work. The Architect or Inspector shall have the authority to reject substandard or unacceptable patching.

G. Patching of openings that are cut in any fire rated walls or membranes shall be sealed tightly using approved materials only. Verify that fire rating envelopes are maintained and inspections provided prior to concealing Work. Cutting and patching, if required by Agencies to verify adequacy of protection after concealment, shall be performed at no cost to the District.

1.02 RELATED SECTIONS

A. Section 00 72 00 - General Conditions.

B. Section 00 73 00 - Special Provisions.

C. Section 01 35 16 - Alteration Project Procedures.

D. Section 01 45 00 - Quality Control.

E. Section 01 50 00 - Construction Facilities and Temporary Controls.

F. Section 02 41 00 - Minor Demolition For Remodeling.

1.03 SUBMITTALS

A. Prior to cutting which affects structural safety of Project, submit written notice to Architect requesting consent to proceed with cutting. See items “C” and “E”, Section 1.01.

B. Should conditions of Work or schedule require change of materials or methods, submit written recommendation to Architect, within 48 hours, including:
   1. Conditions requiring change.
   2. Recommendations for alternative materials or methods.
   3. Submittals as required for substitutions.
   4. Quotations of charges or credits.

C. Submit 48-hour advance written notice to Architect (with a copy to the District Representative) designating the time Work will be uncovered.

D. Submit all materials to be used in cutting and patching in accordance with Specification Section 00 72 00.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Primary Products: Materials for replacement of Work removed are to comply with Technical Specifications and are required to match original installation.

B. Product Substitution: For any proposed change in materials, submit request for substitution in accordance with Specification Section 00 72 00.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine existing conditions prior to commencing Work, including elements subject to movement or damage during cutting and patching.

B. After uncovering existing Work, examine conditions affecting installation of new products and performance of Work.

C. Beginning of cutting or patching operations means acceptance of existing conditions.

3.02 PREPARATION

A. Provide means of shoring, bracing and temporary supports as required to maintain structural integrity of the Work.

B. Provide devices, enclosures and methods to protect adjacent surfaces and areas of the property from damage, dust or disruption.

C. Provide protection from the elements for areas, which may be exposed during cutting or patching.

D. Maintain excavations free of water.

3.03 CUTTING

A. Execute cutting, fitting and adjustment of products to permit finished installation to comply with specified tolerances and finishes.

B. Perform cutting and demolition by methods, which will prevent damage to other Work, and will provide proper surfaces to receive installation of repairs and new Work.

C. Uncover Work to install improperly sequenced Work.

D. Remove and replace defective, rejected or non-conforming Work.

E. Remove samples of installed Work for testing when requested.

F. Provide openings in the Work for penetration of Mechanical and Electrical Work.

G. Employ only experienced installers to perform cutting for weather exposed, moisture resistant and sight-exposed surfaces.

H. Cut concrete, tile plaster and other rigid materials using masonry/concrete saws and core drills. Pneumatic tools are not allowed without prior approval.

3.04 PATCHING

A. Execute patching to match adjacent Work.

B. Fit products together to integrate seamlessly with adjacent Work.

C. Execute patching by methods to avoid damage to adjacent Work, and which will provide appropriate surfaces to receive finishing Work.

D. Employ only experienced installers to perform patching for weather exposed, moisture resistant and sight-exposed surfaces.

E. Restore Work with new products in accordance with requirements of the Contract Documents.

F. At penetrations of fire rated walls, partitions, ceiling or floor construction, completely seal voids with approved fire rated material in accordance with the manufacturers installation instructions and applicable Codes.

G. Fit Work to pipes, sleeves, ducts, conduits and other penetrations through affected surfaces neatly and leave in finished condition.

H. All patched surfaces are to match adjacent finishes in all respects: Type, texture, thickness and color. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit or area.

END OF SECTION

SECTION 01 91 13

GENERAL COMMISHIONING REQUIREMENTS

REVISION SUMMARY

All Users and Designers! This page is for your information only to provide information on the latest update to this specification so that you don't have to traipse line by line looking for the last edit. Please delete this page prior to issuance.

03/15/18 - Revised per 3QC.

09/10/18 - Revised to add Design Professional note at top of section.

Designers!! This section is currently set up as a generalized spec that is required to be tailored to each specific project. Design Professional shall work with District's commissioning agent to craft a project specific specification.

SECTION 01 91 13

GENERAL COMMISSIONING REQUIREMENTS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section includes general commissioning processes and requirements that apply to the implementation of commissioning. Commissioning is a process of review and verification of specific building systems consisting of design and submittal reviews, contractor completed installation checklists, verification of Test and Balance values, and contractor performed functional testing which are all reviewed or witnessed by the CxA.

B. Related Sections include the following:

District does not apply for CHPS due to expense.

2. Section 03 31 00: Structural Concrete

3. Section 07 21 00: Building Insulation

4. Section 07 25 00: Weather Barriers

5. Section 07 41 13: Metal Roof Panels

6. Section 07 42 13: Metal Wall Panels

7. Section 07 46 46: Fiber Cement Siding

8. Section 07 54 19: Single Ply Roofing System

9. Section 07 62 00: Sheet Metal Flashing and Trim

10. Section 07 70 00: Roof Specialties and Accessories

11. Section 08 43 13: Aluminum Framed Storefronts

12. Section 08 45 23: Insulated Translucent Panels

13. Section 08 51 13: Aluminum Windows

14. Section 08 62 13: Domed Skylights

15. Section 08 80 00: Glazing

16. Section 22 05 93: Testing, Adjusting and Balancing for Plumbing.

17. Section 23 05 93: Testing, Adjusting and Balancing for HVAC.

18. Section 23 05 50: Basic Mechanical Materials & Methods.

19. Section 23 09 23: Energy Management System Design Build.

20. Section 26 82 00: Lighting Controls

21. Section 32 80 00: Irrigation

1.03 DEFINITIONS

A. Basis of Design (BoD) document: A document that records concepts, calculations, decisions, and product selections used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.

B. Building Envelope: All parts for the exterior shell of a building that provide insulation and air and water resistance such as roofing, windows, flashing, exterior wall cladding, ground contact waterproofing , etc.

C. Commissioning: - A process to verify that the identified project systems perform as defined in the approved project documents.

D. CxA: Commissioning Authority.

E. Owner’s Project Requirements (OPR): A collection of documents that details the functional requirements of Project and expectations of how it will be used and operated. This document includes Project and design goals, measurable performance criteria, budgets, schedules, success criteria, and supporting information.

F. Owner-Sacramento City Unified School District or designated representative.

G. Systems, Subsystems, and Equipment: Where these terms are used together or separately, they shall mean "as-built" systems, subsystems, and equipment.

H. TAB: Testing, Adjusting, and Balancing.

1.04 COMMISSIONING TEAM

A. A project team created to coordinate the commissioning effort that coordinates and communicates with the rest of the project team, attend meetings, and solve problems. This team includes representatives from the contractor, subcontractors and owner.

B. The prime contractor shall in addition to their representative also appoint a representative from each subcontractor involved in commissioned systems including mechanical, electrical, controls, Test and Balance, plumbing, building envelope, low voltage systems, etc.

C. The owner shall appoint the CxA, facility operations and maintenance, and architect and design members to the commissioning team.

1.05 OWNER’S RESPONSIBILITIES

A. Participate in resolution of issues that may occur as a result of the commissioning process.

B. Assign operation and maintenance personnel and schedule them to participate in commissioning team activities including, but not limited to, the following:

1. Coordination meetings.

2. Training in operation and maintenance of systems, subsystems, and equipment.

3. Testing meetings.

4. Demonstration of operation of systems, subsystems, and equipment.

1.06 CONTRACTOR'S AND SUBCONTRACTOR'S RESPONSIBILITIES

A. Provide utility services required for the commissioning process.

B. Schedule and perform building enclosure testing specified as the contractor's responsibility. Coordinate testing with the architect and CxA.

C. Provide access to building enclosure testing locations as defined by the building enclosure test plan.

D. Provide boom lift with operator, scaffold, power and hose bibb at testing locations performed by the CxA and defined by the building enclosure test plan.

E. Contractor is responsible for construction means, methods, job safety, or management function related to commissioning on the job site.

F. Contractor shall assign representatives with expertise and authority to act on behalf of the Contractor and schedule them to participate in and perform commissioning team activities including, but not limited to, the following:

1. Participate in construction-phase commissioning meetings including controls coordination meeting to review and resolve any issues with the sequence of operations.

2. Participate in maintenance orientation and inspection.

3. Participate in operation and maintenance training sessions.

4. Certify that Work is complete and systems are operational according to the Contract Documents, including calibration of instrumentation and controls.

5. Perform quality control of all work and certify it is complete prior to request for inspection.

G. Evaluate performance deficiencies identified in test reports and, in collaboration with entity responsible for system and equipment installation, recommend corrective action.

H. Contractor shall integrate all commissioning activities into Contractor's master construction schedule. See Exhibit A of this specification section.

I. Subcontractors shall assign representatives with expertise and authority to act on behalf of subcontractors and schedule them to participate in and perform commissioning team activities including, but not limited to, the following:

1. Participate in construction-phase coordination meetings.

2. Participate in maintenance orientation and inspection.

3. Complete pre-functional checklists for all equipment. Submit completed forms with start-up reports immediately after start up.

4. Complete building enclosure construction checklists as required throughout the installation of building enclosure systems as identified. Submit completed forms upon installation completion of each building enclosure system.

5. Schedule and perform building enclosure testing as specified in the technical specification sections with CxA as witness.

6. Schedule and perform duct air leakage testing as specified in the technical specification sections with CxA as witness. Duct leakage testing required for ducted systems over 3-inch water column static pressure.

7. Provide flushing plans, disinfection reports and water treatment reports to the CxA for review.

8. Participate in pre-TAB meeting and jobsite inspections to verify TAB readiness.

9. Provide draft completed TAB report to CxA for review. CxA will identify up to 20 % of TAB report for TAB contractor to demonstrate compliance to the completed TAB report.

10. Participate in procedures meeting for testing.

11. Perform point-to-point, calibration and checkout of the building automation system and provide completed report to the CxA for review.

12. Participate in final review at acceptance meeting.

13. Provide schedule for operation and maintenance data submittals, equipment startup, and testing to CxA for incorporation into the commissioning plan. Update schedule on a weekly basis throughout the construction period.

14. Provide information to the CxA for developing construction-phase commissioning plan.

15. Participate in training sessions for operation and maintenance personnel.

16. Verify that all systems function correctly by testing each mode of operation, alarm and system function.

17. Gather and submit operation and maintenance data for systems, subsystems, and equipment to the CxA, as specified.

18. Perform quality control of all work and certify it is complete prior to request for observation and or testing.

19. Complete and sign Systems Functional Testing Readiness Certification and Notification Letter for Commissioning and provide to CxA (See Exhibit B of this specification section).

20. Provide technicians who are familiar with the construction and operation of installed systems and who shall develop specific test procedures and participate in testing of installed systems, subsystems, and equipment.

21. Perform seasonal testing, at the direction of the CxA, to prove functional performance of the HVAC and controls in the opposite season.

1.07 ARCHITECT AND DESIGN ENGINEER RESPONSIBILITIES

A. Responsible for developing the construction contract documents and clarifying the design intent during the construction phase of the project.

B. Performs construction observation.

C. Contracted directly to District.

D. Coordinate with the CxA specified building enclosure test plans developed by the architect and or CxA.

1.08 CXA'S RESPONSIBILITIES

A. Organize and lead the commissioning team.

B. Prepare a Commissioning Plan. Collaborate with design team, owner, contractor and subcontractors to develop test and inspection procedures. Identify commissioning team member responsibilities, by name, firm, and trade specialty, for performance of each commissioning task.

C. Work with the Contractor to schedule commissioning activities. The Contractor shall integrate all commissioning activities into the master construction schedule. All parties will address scheduling issues in a timely manner in order to expedite the commissioning process.

D. Review and comment on submittals for compliance with the approved project documents and identify any potential conflicts.

E. Conduct commissioning team meetings for the purpose of coordination, communication, and conflict resolution; discuss progress of the commissioning processes. The CxA shall prepare and distribute minutes to commissioning team members and attendees within five (5) workdays of the commissioning meeting.

F. At the beginning of the construction phase, conduct an initial construction-phase coordination meeting for the purpose of reviewing the commissioning activities and establishing tentative schedules for permanent power; operation and maintenance data submittals; operation and maintenance training sessions; TAB Work; and Project completion.

G. Periodically observe and inspect construction and report progress and deficiencies. In addition to compliance with the Contract Documents, inspect systems and equipment installation for adequate accessibility for maintenance and component replacement or repair.

H. Prepare Project-specific pre-functional checklists, functional test procedures checklists and building enclosure construction checklists.

I. Compile test data, inspection reports, and certificates and include them in the systems manual and commissioning report.

J. Review and comment on operation and maintenance documentation for compliance with the Contract Documents. Operation and maintenance documentation requirements are specified in Division 01 Section "Operation and Maintenance Data."

K. Review Contractor’s operation and maintenance training program. Operation and maintenance training is specified in Division 01 Section "Demonstration and Training."

L. Prepare commissioning status reports.

M. Assemble the final commissioning documentation, including the Commissioning Report including applicable Project Record Documents.

1.09 COMMISSIONING DOCUMENTATION

A. Commissioning Plan: A document, prepared by CxA, that outlines the process, schedule, allocation of resources, and documentation requirements of the commissioning effort, and shall include, but is not limited to the following:

1. Description of the organization, layout, and content of commissioning documentation to be provided along with identification of responsible parties.

2. Identification of systems and equipment to be commissioned.

3. Description of the level of commissioning for each system and define levels of commissioning.

4. Description of schedules for testing procedures along with identification of parties involved in performing and verifying tests.

5. Identification of items that must be completed before the next operation can proceed.

6. Description of responsibilities of commissioning team members.

7. Description of observations to be made.

8. Description of requirements for operation and maintenance training, including required training materials.

9. Provide a schedule for commissioning activities with specific dates coordinated with overall construction schedule.

10. Define the process for completing pre functional and startup checklists for systems, subsystems, and list of specific equipment requiring these checklists.

11. Include Step-by-step procedures for Functional testing systems, subsystems, and equipment with descriptions for methods of verifying relevant data, recording the results obtained, and listing parties involved in performing and verifying tests. Meet Title-24 minimum functional requirements only.

B. Pre-Functional Checklists: CxA shall develop pre-functional checklists for all equipment to be commissioned.

C. Functional Performance Testing: CxA shall develop functional performance test procedures for all equipment and systems to be commissioned that meet Title-24 minimum requirements only.

D. Building Enclosure Construction Checklists: CxA shall develop BECx checklists for the installation and verification of procedures.

E. BECx Test Plan: CxA shall develop building enclosure tests plans as specified. If test plans are developed by the architect CxA shall review and provide comments as required.

D. Site Visit Reports: CxA shall record test data, observations, and measurements on site visit forms. Photographs and other means appropriate for the application shall be included with data.

E. Test and Inspection Reports: CxA shall compile test and inspection reports and test and inspection certificates and include them in systems manual and commissioning report.

F. Commissioning Schedule: CxA shall review and provide input to the master project and construction schedules for commissioning activities.

G. Issues Log: CxA shall prepare and maintain an issues log that describes installation, and performance issues that are at variance with the Contract Documents. CxA will identify and track issues as they are encountered, documenting the status of unresolved and resolved issues.

1. Creating an Issues Log Entry:

a. Identify the issue with unique numeric or alphanumeric identifier by which the issue may be tracked.

b. Assign a descriptive title of the issue.

c. Identify issue date.

d. Identify test number of test being performed at the time of the observation, if applicable, for cross-reference.

e. Identify system, subsystem, and equipment to which the issue applies.

f. Identify location of system, subsystem, and equipment.

g. Include information that may be helpful in diagnosing or evaluating the issue.

h. Note recommended corrective action.

i. Identify commissioning team member responsible for corrective action.

j. Identify expected date of correction.

k. Identify person documenting the issue.

l. List the issue's code and contract document reference, i.e., specification or plan sheet location.

2. Documenting Issue Resolution:

a. Log date correction is completed or the issue is resolved.

b. Describe corrective action or resolution taken. Include description of diagnostic steps taken to determine root cause of the issue, if any.

c. Identify changes to the Contract Documents that may require action, if any.

d. State that correction was completed and system, subsystem, and equipment are ready for retest, if applicable.

e. Identify person(s) who corrected or resolved the issue.

f. Identify person(s) documenting the issue resolution.

g. Identify RFI or ASI references to the issue resolution.

G. Commissioning Report: CxA shall document results of the commissioning process including performance of systems, subsystems, equipment and issues. The commissioning report shall indicate whether systems, subsystems, and equipment have been completed and are performing according to the OPR, BoD and Contract Documents. The commissioning report shall include, but is not limited to, the following:

1. Discussion of performance of commissioned systems including any variance from OPR, BOD and the Contract Documents; record of conditions; and, if appropriate, recommendations for resolution. This report shall be used to evaluate systems, subsystems, and equipment and shall serve as a future reference document during District occupancy and operation. It may also include a recommendation for accepting or rejecting systems, subsystems, and equipment.

2. Commissioning Plan. (Define the plan for this project.)

3. Testing plans and reports. (Title-24 MCH-XXX and Electrical functional tests only.)

4. Issues log.

5. Completed test checklists.

6. Listing of off-season test(s) not performed and a schedule for their completion.

H. Systems Manual: CxA shall gather required information and compile systems manual. Systems manual shall include, but is not limited to, the following:

1. As-built system narratives, schematics, and list of installed equipment, including; Building Envelope, HVAC, Laboratory HVAC, Fire Protection and Alarm, Irrigation Control, Power and Lighting Controls installed schematics.

2. Operation and maintenance manuals.

1.10 CXA SUBMITTALS

A. Commissioning Plan: CxA shall submit a draft commissioning plan. Deliver one copy to Contractor and one to District. Present submittal in sufficient detail to evaluate data collection and arrangement process. One copy, with review comments, will be returned to the CxA for preparation of the final commissioning plan.

B. Pre functional Checklists: CxA shall submit sample checklists and forms to Contractor and subcontractors for review and comment.

C. Functional Test Plan: CxA shall submit draft Functional Test Plan and checklists for comment. The final Functional Test Plan will be submitted and used for functional testing. Submit the Title-24 required functional tests.

D. Site visit reports: CxA shall submit site visit reports as they are created.

E. Final Commissioning Report: CxA shall submit the draft commissioning report. One copy, with review comments, will be returned to the CxA for preparation of final submittal. The final report submittal must address previous review comments.

1.11 COORDINATION

A. Coordinating Meetings: CxA shall conduct coordination meetings of the commissioning team as needed to review progress on the commissioning plan, to discuss scheduling conflicts, and to discuss upcoming commissioning process activities.

B. Pretesting Meetings: CxA shall conduct pretest meetings with the commissioning team to review startup reports, coordinate controls sequence of operations, review pretest inspection results, review testing and balancing procedures, review testing personnel and instrumentation requirements, and manufacturers' authorized service representative services for each system, subsystem, equipment, and component to be tested.

C. Testing Coordination: CxA shall coordinate with the OWNER and Contractor to plan the sequence of testing 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.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 BUILDING ENCLOSURE CONSTRUCTION CHECKLISTS

A. Building Enclosure Construction Checklists are developed by the CxA and completed by the appropriate installing contractors for all major building enclosure systems being commissioned. The checklists are to be completed during the installation phase of each system. These checklists are to ensure that each building enclosure system is being installed according to the specified installation standards. The building enclosure checklists are in addition to the manufacturer’s installation checklists and DO NOT replace the manufacturer’s installation checklists. The Contractor and vendors shall also execute manufacturer’s installation check provide CxA with a copy of the signed and dated completed checklists which will be submitted with the Building Enclosure Construction Checklists.

B Execution of Building Enclosure Construction Checklists

1. Construction checklists will be provided to the project site by the CxA.

2. The contractor shall maintain a master copy of signed checklists.

3. The installing contractors shall update the checklists as work is completed. Only individuals that have direct knowledge and witnessed that a line item task on the pre-functional checklist was actually performed shall initial or check that item off.

4. The CxA will periodically review the checklists for completeness and report on progress at the Cx meetings.

3.02 PRE-FUNCTIONAL CHECKLISTS AND FACTORY START UP REPORTS

A. Pre-functional Checklists are developed by the CxA and completed by the appropriate installing contractors for all major equipment and systems being commissioned before functional testing can begin. The checklist captures equipment nameplate and characteristics data, confirming the as-built status of the equipment or system. These checklists also ensure that the systems are complete and operational, so that the functional performance testing can be scheduled. The Contractor and vendors shall execute factory startup and provide the CxA with a copy of the signed and dated completed start-up checklists which will be submitted with the Pre-Functional checklists.

B. Execution of Pre-functional Checklists and Startup.

1. Pre Functional checklists will be provided to the project site by the CxA.

2. The contractor shall maintain a master copy of signed checklists.

3. The installing contractors shall update the checklists as work is completed. Only individuals that have direct knowledge and witnessed that a line item task on the pre-functional checklist was actually performed shall initial or check that item off.

4. The CxA will periodically review the checklists for completeness and report on progress at the Cx meetings.

C. Deficiencies, Non-Conformance and Approval in Checklists and Startup.

1. The Contractor shall clearly list any outstanding items of the initial start-up and pre-functional procedures that were not completed successfully, at the bottom of the procedures form or on an attached sheet. The procedures form and any outstanding deficiencies are provided to the CxA within two days of test completion.

2. The CxA reviews the report and reports to the District. The CxA shall work with the Contractor and vendors to correct and retest deficiencies or uncompleted items.

3.03 FUNCTIONAL PERFORMANCE TESTING

A. Objectives and Scope. The objective of functional performance testing is to demonstrate that each system is operating according to the Contract Documents Title-24 test requirements. Each system will be tested to verify that the system response is as designed. HVAC and Laboratory systems will be checked for conformance to the design sequences of operation and stable control, lighting control will be checked in each type of lighting area, and irrigation control will be checked.. Proper system responses to such conditions as power failure, out of limit condition, equipment failure, etc. shall also be tested.

B. Early duct air leakage tests shall be performed to ensure green and building code compliance to duct systems with over 3-inch w.c. static pressure. Point-to-point testing will be performed by controls contractor on all applicable systems, with results given to CxA prior to functional performance testing.

C. Development of Test Procedures: The test procedures are written by the CxA based upon the final operational sequences from available project documentation. The CxA shall develop specific test procedures and forms to verify and document proper operation of each system. Prior to execution, the CxA shall provide a copy of the test procedures to the Contractor who shall review the tests for feasibility, safety, equipment and warranty protection. The test procedure checklists developed by the CxA shall include the following information:

1. System and equipment or component name(s).

2. Equipment location and ID number.

3. Date.

4. Project name.

5. Participating parties.

6. Reference to the specification section describing the test requirements, if applicable.

7. A copy of the specific sequence of operations.

8. Prerequisites for the test.

9. Special cautions, alarm limits, etc.

10. Specific step-by-step procedures to execute the test.

11. Acceptance criteria of proper performance with a Yes / No/NA check box.

12. A section for comments.

D. Test Methods.

1. Functional testing is performed by the contractors with the method and degree of testing as defined in this specification for each system. Each function and test shall be performed under conditions that simulate actual conditions as close as is practically possible. The Contractor executing the test shall provide all necessary materials, system modifications, etc. to produce the necessary flows, pressures, temperatures, etc. necessary to execute the test according to the specified conditions. At completion of the test, the Contractor shall return all affected building equipment and systems to their pre-test condition.

2. Multiple identical pieces of equipment may be functionally tested using a sampling strategy. The sampling strategy will be defined in these specifications with the commissioned systems list.

E. Coordination and Scheduling: The Contractor shall provide two weeks' notice to the CxA regarding their completion schedule for the pre-functional checklists and startup of all equipment and systems. The CxA will schedule functional tests through the District Representative and Contractor. Problem Solving: The CxA will recommend solutions to problems found; however, the burden of responsibility to solve, correct and retest problems is with the Contractor and District's consultants.

3.04 OPERATION AND MAINTENANCE TRAINING REQUIREMENTS

A. Before the operation and maintenance training, CxA shall review training preparation for compliance with project documents.

B. Training is required per contract specifications. At a minimum, training is required for Mechanical, Lighting, Irrigation and Controls systems.

C. The CxA requires submission of training records including attendance lists to verify appropriate people received the training.

3.05 COSTS OF COMMISSIONING WORK

A. The cost to the Contractor and Subcontractors to comply with the specified requirements and to support the work of the CxA shall be included in the Contractor's and Subcontractor's bid price.

B. If CxA arrives onsite, on the scheduled date for functional testing (as indicated on the Systems Functional Testing Readiness Certification and Notification Letter for Commissioning, see Exhibit B of this specification section) which cannot be completed due to systems readiness failure, systems technician no-show, or other circumstances not

caused by CxA resulting in failed functional testing; it is understood that the CxA's client (listed on Exhibit B) will be invoiced for expenses incurred by CxA. The contractor also agrees to reimburse said client for incurred expenses. CxA expenses will be invoiced as follows:

- Travel expenses as applicable
- $1,600/day for each on-site 3QC CxA

3.06 COMMISSIONED SYSTEMS

System	Equipment	Level
HVAC&R Systems	Split system heat pumps	5
	Rooftop air conditioners	5
	Split system air conditioners	5
	Make up air unit	5
	Kitchen exhaust system	5
	Test and balance report values	4
Building Management System	Sequences of operation, monitored points, and alarms	5
	Metering/monitoring devices and equipment	5
	Software commissioning, GUI presentation commissioning, system access performance criteria, software tools/source code commissioning, instrument data sheets, middleware commissioning, Internet Protocol commissioning	5
Building Envelope	Foundation/slab	3
	Exterior wall systems	3
	Roof systems	3
Electrical Systems	Scheduled lighting controls	3
	Day-light savings and dimming controls	3
	Lighting occupancy sensors	3
Plumbing Systems	Domestic water heaters	5
	Thermostatic mixing valves	5
Irrigation	Irrigation Controllers	2

A. Levels Defined:

Level 1 - The CxA will periodically observe and inspect the installation of equipment and systems and review project documentation (test reports) to verify operational requirements meet the contract documents.

Level 2 - The CxA will periodically observe and inspect the installation of equipment and systems and review project documentation (test reports). The CxA may spot check some of the system functions verify operational requirements are met.

Level 3 - The CxA will periodically observe and inspect the installation of equipment and systems and review project documentation (test reports) and will witness contractor performance testing of the system. Contractor shall test up to 20% of the system to prove operational requirements are met. The test sections shall be chosen at random by the CxA. Failure of any test section shall require retesting of that section and an additional test section equivalent in scope.

Level 4 - The CxA will periodically observe and inspect the installation of equipment and systems and review project documentation (test reports) and will witness contractor performance testing of the system. Contractor shall test up to 50% of the system to prove operational requirements are met. The test sections shall be chosen at random by the CxA. Failure of any test section shall require retesting of that section and an additional test section equivalent in scope.

Level 5 - The CxA will periodically observe and inspect the installation of equipment and systems and review project documentation (test reports) and will witness contractor performance testing of the system. Contractor shall test up to 100% of the system to prove operational requirements are met. The test sections shall be chosen at random by the CxA. Failure of any test section shall require retesting of that section and an additional test section equivalent in scope.

3.07 METHODS OF TESTING

A. HVAC&R Systems

1. Contractor will demonstrate to the CxA that the operation of each system through all modes, alarms, and operating parameters meet the project specifications.

2. The TAB contactor will re-measure up to 25% of the final TAB Report for the CxA to observe. The points to be verified will be selected by the CxA.

B. Building Management System

1. The Controls contactor will re-measure some of the points for the CxA to observe that the calibration is correct. The points to be verified will be selected by the CxA.

2. All of the user graphics interfaces and displayed operating points will be demonstrated for the CxA by the contractor.

3. Controls contractor shall manipulate the system to demonstrate that it performs all of the specified modes of operation.

4. Points selected by the CxA will be trended by the Controls Contractor to verify control operation and response.

C. Building Envelope

1. Specified building enclosure systems installation and testing is defined in each applicable specification section. Specified installation and testing may include but not limited to the following installation and testing standards:

   a. Vapor Barrier Installation – ASTM E1643 – Standard Practice for Selection, Design, Installation and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.

   b. Insulation Installation Inspection – ASTM C1060-90 – Standard Practice for Thermographic Inspection of Insulation Installations in Envelope Cavities of Frame Buildings.

   c. Windows and Curtain Wall Installation – ASTM E1105 – Standard Test Method for Field Determination of Water Penetration of Installed Window, Skylights, Doors and Curtain Walls by Uniform or Cyclic Static Air Pressure Difference.

d. Dissimilar Enclosure Material Intersections – AAMA 501.2 – Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls and Sloped Glazing Systems.

e. Exterior Sealants – ASTM C1193 – Standard Guide for Use of Joint Sealants, Appendix X1 – Method A, Field Applied Sealant Joint Hand Pull Tab.

f. Horizontal Waterproofing Installation – ASTM D 5957 – Standard Guide for Flood Testing Horizontal Waterproofing Installations.

2. Copies of any required enclosure testing and test plans will be submitted to CxA for review and comment prior to performing any tests.

3. CxA will be notified 14 days prior to any scheduled building enclosure field tests allowing time for CxA to witness field tests, as required.

D. Electrical Systems

1. Upon completion of the lighting control installation and contractor testing the CxA will verify the performance of the system by witnessing its operation.

2. Upon completion of the uninterruptible power supply and contractor pretesting, the CxA will witness a Contractor test to verify complete system power loss and verify proper power provision of critical systems.

E. Plumbing

1. Domestic hot water will be tested by the CxA by measuring the hot water temperature at a percentage of the fixtures along with the time it takes to reach that temperature.

2. After receipt of completed prefunctional checklists and manufacturer's authorized start-up reports, the CxA will test the shops, dental compressed air and vacuum systems for proper operation.

F. Irrigation

1. The CxA will witness the contractor demonstration of the irrigation controller.

2. The CxA will witness, verify and note the sequence of operation and timing of sequences.

1 Exhibit A

Commissioning Activity Schedule SJUSD - New Greer Elementary School							
	Commissioning (Cx) Construction Phase Activity	Building System			Parallel Construction Site Activity	Duration of Cx Activity	CxA Required Site Visit
		BECx	MEPCx				
1.	Cx Kick-off Meeting	●	●		Contractor mobilized onsite	1 day	●
2.	CxA provided jobsite Pre-Functional Checklist Binder to CM and or Contractor		●		CM and or GC to receive PFC binder from CxA during Cx Kick-off Meeting	1 day	
3.	CxA identifies submittals required for Cx	●	●		Contractor provides a submittal list for CxA review	1 day	
4.	CxA reviews submittals	●	●		A/E reviews submittals	In process	
5.	CxA reviews building enclosure shop drawings	●			Architect's review of building enclosure shop drawings	In process	
6.	CxA receives O & M Manuals	●	●		Subcontractors sends O & M Manuals to Contractor	In process	
7.	Foundation waterproofing site observation & update Cx Issues Log as required	●			10 - 25% of waterproofing installed	1 day	●
8.	Under slab vapor barrier Site Observation & update Cx Issues Log as required	●			10 - 25% of vapor barrier installed	1 day	●
9.	Specified building enclosure mockup Site Observation	●			Architect's review of mockup	1 day	●
10.	Specified building enclosure water spray testing Site Observation	●			Day of specified building enclosure water testing	1 day	●
11.	Mechanical equipment site verification, update Cx Equipment List & update Cx Issues Log		●		Mechanical equipment set	1 day	●
12.	Exterior wall waterproofing membrane & flashing Site Observation, update Cx Issues Log	●			10-25% of exterior wall waterproofing membrane installed with all windows, door frames and flashings installed	1 day	●
13.	Perimeter wall insulation Site Observation & update Cx Issues Log as required	●			75%-100% perimeter wall insulation installed prior to drywall installation	1 day	●
14.	Roof installation Site Observation & update Cx Issues Log as required	●			10-25% of the roof membrane installed	1 day	●
15.	Specified roof water testing site observation & update Cx Issues Log as required	●			Day of specified roof water testing	2 days	o
16.	CxA to start development of Cx Functional Test Checklists		●		Submittal reviews complete	14 days	

Commissioning Activity Schedule SJUSD - New Greer Elementary School							
	Commissioning (Cx) Construction Phase Activity	Building System			Parallel Construction Site Activity	Duration of Cx Activity	CxA Required Site Visit
		BECx	MEPCx				
17.	CxA notified that permanent power is installed		●		Permanent power installed	1 day	
18.	CxA receives copies of the field Duct Leakage Testing Report		●		Duct leakage testing completed	1 day	
19.	CxA conducts onsite functional testing procedures meeting with CM, GC, MEP and low voltage subcontractors		●		1 month prior to Cx Functional Testing	1 day	●
20.	CxA issues Functional Test Checklists to CM, GC and MEP subcontractors		●		1 Month prior to Cx Functional Testing	1 day	
21.	CxA receives jobsite Pre-Functional Checklist Binder w/ completed, signed and dated checklists		●		2 Weeks prior to Cx Functional Testing	1 day	
22.	CxA receives field TAB Report reviewed by Engineer of Record		●		1 Week prior to Cx Functional Testing	1 day	
23.	CxA receives signed Systems Functional Testing Readiness Certification and Notification Letter for Commissioning that BMS, MEP systems are completed and ready for Cx Functional Testing		●		1 Week prior to Cx Functional Testing	1 day	
24.	Start functional testing on BMS, HVAC, domestic hot water, lighting controls and irrigation control systems		●		CM and or GC sent CxA the following functional testing prerequisites: a. CxA received signed notification letter that BMS, MEP systems are completed and ready for Cx functional testing. b. Pre-functional checklist completed and signed. c. CxA received TAB report.	1 day	
25.	Cx TAB verification water and air values		●		TAB subcontractor meets CxA onsite to verify TAB	2 days	○
26.	Cx of BMS		●		Controls subcontractor meets CxA onsite to perform functional testing of BMS after BMS point-to-point & checkout is completed	1 day	●

Commissioning Activity Schedule SJUSD - New Greer Elementary School							
	Commissioning (Cx) Construction Phase Activity	Building System			Parallel Construction Site Activity	Duration of Cx Activity	CxA Required Site Visit
		BECx	MEPCx				
27.	Start Cx functional testing, MEP systems		●		Scheduled after CxA receives and or performs Items 21, 22, 23 and 24	1 day	
28.	Cx of HVAC		●		Controls subcontractor meets CxA onsite to perform functional testing of HVAC	3 days	o
29.	Cx of domestic hot water		●		Plumbing subcontractor meets CxA onsite to perform functional testing of Domestic Hot Water	½ day	●
30.	Cx of lighting controls		●		Electrical lighting controls contractor and electrical contractor meets CxA onsite to perform functional testing of lighting controls	½ day	●
31.	CxA performs building enclosure punchlist site observation	●			Building enclosure systems are completed	1 day	●
32.	CxA performs building enclosure punchlist verification site observation	●			GC and or CM verified all building enclosure punchlist items are completed	1 day	●
33.	CxA receives building systems owner training schedule		●		Cx functional testing completed	1 day	
34.	CxA confirms all Cx Issues are resolved	●	●		CM receives responses addressing Cx issues	1 day	
35.	Cx Systems Manual	●	●		Cx systems O & M Manuals sent to CxA	In process	
36.	Cx Report	●	●		Cx systems testing completed	14 days	
37.	Cx Warranty Review	●	●		10 months from date of owner's occupancy	1 day	●

o Indicates consecutive days CxA is onsite.

Schedule Notes:

The following sequential priorities are followed:

1. Equipment is not "temporarily" started (for heating or cooling), until pre-start checklist items and all manufacturer's pre-start procedures are completed, dirt, dust and other environmental and building integrity issues have been addressed.
2. Functional performance testing does not begin until Pre-Functional, start-up and TAB is completed for a given system.
3. The controls systems and equipment under its control is not functionally tested until all points have been calibrated and Pre-Functional Checklists are completed.

Exhibit B

Systems Functional Testing Readiness Certification and Notification Letter for Commissioning

SJUSD-New Greer Elementary School
2301 Hurley Way
Sacramento, CA

This letter shall serve as certification to 3QC that all applicable systems checked below have been fully tested to perform as specified in the Construction Documents, in accordance with 3QC's Functional Testing Checklists, and that all functional testing prerequisites as outlined in the Commissioning Specifications and Commissioning Plan have been completed and submitted to 3QC for review. 3QC is hereby officially notified to begin onsite functional testing of the following systems:

Systems Ready for Functional Testing by 3QC
(Completed by General Contractor or CM at Risk as systems become available and are ready for testing – meeting all criteria explained here within)

Check Applicable System	Systems	Date GC is Requesting for CxA on-site Functional Testing **
	TAB Verification	
	BMS, BAS, DDC or EMS	
	HVAC Systems	
	Plumbing Systems	
	Emergency Power Systems	
	Lighting Control Systems	
	Renewable Energy Systems	
	Communication Systems	
	Electronic Safety and Security Systems	
	Irrigation	
	Building Enclosure Testing or Testing Observation	

** = ***Systems Technician Required*** – The contractor certifies that a systems technician familiar with and capable of operating each system to be commissioned will be available onsite throughout functional testing by 3QC. For BMS, BAS, DDC or EMS systems this must be the commissioning technician/programmer.

Failed Functional Testing – If 3QC arrives onsite, on the date indicated above, for functional testing which cannot be completed due to systems readiness failure, systems technician no-show, or other circumstances not caused by 3QC resulting in failed functional testing; it is understood that 3QC's client (listed below) will be invoiced for expenses incurred by 3QC. The contractor also agrees to reimburse said client for incurred expenses. 3QC expenses will be invoiced as follows:

- Travel expenses as applicable
- $1,600/day for each on-site 3QC CxA

Signature of 3QC's Client or Representative Print Name Date

Signature of General Contractor or CM at Risk Print Name Date

[END OF SECTION 01 91 13]

SECTION 02 41 00

SITE DEMOLITION

PART 1 – GENERAL

1.01 SUMMARY

A. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 01 50 00 - Construction Facilities and Temporary Controls.
3. Section 01 50 13 - Construction Waste Management and Disposal.
4. Section 31 13 16 - Tree Protection.

1.02 REGULATORY REQUIREMENTS

A. Conform to applicable jurisdictional authority regulations and codes for disposal of debris.

B. Coordinate clearing Work with utility companies

C. Maintain emergency access ways at all times.

D. Contractor shall comply with all applicable laws and ordinances regarding hazardous materials, including contaminated soils, hazardous material transformers, and similar materials or components.

1.03 SUBMITTALS:

A. Schedule: Submit a detailed sequence of demolition and removal work, including dates for shutoff, capping, and continuance of utility services.

B. Procedures: Submit written procedures documenting the proposed methods to be used to control dust and noise.

1.04 EXISTING CONDITIONS

A. Contractor shall acquaint himself with all site conditions. If unknown active utilities are encountered during work, notify Architect promptly for instructions. Failure to notify will make Contractor liable for damage to these utilities arising from Contractor's operations subsequent to discovery of such unknown active utilities.

B. Conduct demolition to minimize interference with adjacent structures or items to remain. Maintain protected egress and access at all times.

1.05 PROTECTION

A. Adequate protection measures shall be provided to protect workmen and passers-by on and off the site. Adjacent property shall be fully protected throughout the operations. Blasting will not be permitted. Prevent damage to adjoining improvements and properties both above and below grade. Restore such improvements to original condition should damage occur. Replace trees and shrubs outside building area disturbed by operations.

B. In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for working conditions at the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and shall not be limited to normal working hours.

C. Safety Precautions Prevent damage to existing elements identified to remain or to be salvaged, and prevent injury to the public and workmen engaged on site. Demolish roofs, walls and other building elements in such manner that demolished materials fall within foundation lines of building. Do not allow demolition debris to accumulate on site. Pull down hazardous work at end of each day; do not leave standing or hanging overnight, or over weekends.

    1. Protect existing items which are not indicated to be altered. Protect utilities designated to remain from damage.
    2. Protect trees, plant growth, and features designated to remain as final landscaping as shown on drawings.
    3. Protect benchmarks from damage or displacement.

D. Trees: Carefully protect existing trees that are to remain. Provide temporary irrigation as necessary to maintain health of trees.

E. Fire Safety: The contractor shall conform to chapter 33 of the California Fire Code (CFC), "Fire Safety During Construction and Demolition", at all times during the construction process. A copy of this chapter can be provided.

F. Any construction review of the Contractor's performance conducted by the Geotechnical Engineer is not intended to include review of the adequacy of the Contractor's safety measures, in, on, or near the construction site.

G. Surface Drainage: Provide surface drainage during period of construction in a manner to avoid creating nuisance to adjacent areas. The contractor shall make a reasonable effort on a daily basis to keep all excavations and the site free from water during entire progress of work, regardless of cause, source, or nature of water.

H. Adjacent streets and sidewalks shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.

I. The site and adjacent influenced areas shall be watered as required to suppress dust nuisance. Dust control measures shall be in accordance with the local jurisdiction.

PART 2 - PRODUCTS

Not Used

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine conditions of work in place before beginning work, report defects.

B. Report existence of hazardous materials or unsafe structural conditions.

3.02 PREPARATION

A. Scheduling:

1. General: Coordinate and schedule demolition work as required by the Owner and as necessary to facilitate construction progress.

B. Hazardous Materials:

1. General: Identify chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with demolition operations, and notify such jurisdictional agencies as may be required. Collect and legally dispose of such materials at official disposal locations away from the site.
2. Asbestos: If asbestos or materials containing asbestos are encountered, stop work immediately and contact the Owner. Do not proceed with demolition until directed by Owner.

C. Utility and Service Termination

1. Locate and identify existing utility, service and irrigation system components affected by work of this contract. Review existing record drawings, conduct site investigations, contact Underground Service Alert and other qualified cable/pipe/line locator services, and implement all other means necessary to define the location of underground systems.
2. Prior to beginning any demolition, properly disconnect all water, gas and electrical power supply at appropriate disconnect locations. Obtain all necessary releases and approvals from serving utility companies.
3. Prior to demolition or disconnect, obtain Owner's approval that such system does not impact facilities or systems beyond the extent of this contract.
4. Mark location of disconnected systems. Identify and indicate stub-out locations on Project Record Documents.

D. Verify that existing plant life and features designated to remain are tagged or identified.

1. The Architect will mark the features, trees, and shrubs to remain within the construction area. Contractor shall not commence clearing and grubbing operations until authorized by the Owner and all protective measures are in place.

E. Coordinate the time and duration of all system disconnects with Owner.

3.03 DEMOLITION

A. General Requirements

1. Clear areas required for access to site and execution of Work, including pavements, structures, foundations, vegetation, trash and debris.
2. Coordinate with Owner the time of day and route to remove demolished materials from premises.
3. Remove demolished materials from site as work progresses. Upon completion of work, leave areas of work in clean condition.
4. Remove all buried debris, rubble, trash, or other material not deemed suitable by the Geotechnical Engineer.
5. Fill all voids or excavations resulting from clearing, demolition, or removal of vegetation with specified fill material.
6. See list below for other site specific buildings, structures, equipment that need to be walked with District prior to demolition for items to be salvaged:
   a. Landscape irrigation
   c. Picnic Tables

B. Fixture and Equipment Removal:

1. Remove existing fixtures and equipment as identified and shown on drawings and required by Architect.
2. Verify all service connections to fixtures and equipment designated for removal have been properly disconnected.
3. Remove all conductors from conduit at all abandoned circuits.

3.04 UTILITY AND BUILDING SERVICES REMOVAL AND RE-INSTALLATION

A. Where crossing paths and potential points of interference with existing utility services are shown or can be reasonably inferred from surface conditions or evidence of subsurface systems, such as meter boxes, vaults, relief vents, cleanouts and similar components.

1. Review all contract documents showing crossing paths and potential points of interference.
2. Pothole or determine by other means the accurate depth and location of such utilities.
3. Incorporate all costs required to complete work under this contract, including additional trenching, re-routing of existing and new utilities, and all means necessary to construct work under this contract.
4. No additional cost to the Owner will be allowed for work necessary to accommodate utility conflicts where such crossing paths are shown on contract drawings or can be reasonably inferred from surface conditions or components.

B. Remove all conductors from conduit at all abandoned electrical circuits.

C. Seal off ends of all piping, drains and other components as directed by Architect and serving utility.

D. Where necessary to maintain service to existing utility and building systems, relocate or redirect all conduit and conductors, piping, drains, and associated system components.

1. Re-circuit all electrical as required.
2. Re-circuit all landscape irrigation valving and control systems as required.
3. Temporarily terminate landscape system components in approved boxes or with approved caps, suitable for re-connection or extension.
4. Extend or otherwise modify all site drainage systems, including catch basins, drain inlets and piping. Fine grade to maintain proper drainage flow pattern to drains.

E. Demolish structure in an orderly and careful manner.

1. Use of explosives prohibited.

3.05 SITE PAVEMENT REMOVAL

A. Remove sidewalk and curb where required for new construction as specified and as indicated on the Drawings.

1. Remove all paving by saw-cutting.
2. Remove concrete paving and curbing at locations shown on drawings. Locate closest adjacent expansion or weakened plane joint to define start of removal or saw-cutting.

B. Remove asphalt concrete paving areas where required for new construction as specified and as indicated on the Drawings.

1. Remove all paving by saw-cutting.
2. Remove paving assembly as required to expose subgrade.

3.06 LANDSCAPE AND IRRIGATION SYSTEMS DEMOLITION AND RENOVATION

A. Clearing, grubbing, and planting demolition.

1. Remove grass and grass roots to a minimum depth of two inches below existing grade.
2. Remove all shrubs, plants and other vegetation within the area of the work unless designated to remain. Grub and remove all roots of all vegetation to a depth of 24 inches below existing grade.
3. Remove only those trees which are specifically designated for removal, or as shown on the drawings, within the construction area. Remove all stumps. Remove root ball and root systems larger than 1 inch in diameter to a depth of two feet below existing or finished grades, whichever is lower and a minimum of five feet beyond the edge of paving, structure, wall or walkway.
4. Hand cut existing tree roots over 1 inch in diameter as necessary for trenching or other new construction, apply multiple coats of emulsified asphalt sealant especially made for horticultural use on cut or damaged plant tissues to cut faces and adjacent surfaces. Cover exposed roots with wet burlap to prevent roots from dying out until backfilling is complete.
5. Major roots two inches or greater in diameter encountered within the tree's dripline in the course of excavation from beneath trees which are not to be removed shall not be cut and shall be kept moist and covered with earth as soon as possible.

6. Disking and mixing of vegetation, trash, debris, and other deleterious materials with surface soils prior to grading is not permitted.
7. Remove all buried debris, organic material, rubble, trash, or other material not deemed suitable by the Geotechnical Engineer.
8. Fill all voids or excavations resulting from clearing, demolition, or removal of vegetation with fill material in compliance with Section 31 00 00.
9. Selected equipment of such sizes and capacities that the existing environment is disturbed as little as possible, and to afford ease of mobility within limited and relatively confined work areas. Make every effort to preserve the topography in its natural state.
10. Keep drains, catch basins, surface drainage courses and related drainage system components clear of debris and construction materials.
11. Remove irrigation piping and appurtenances as necessary within area of work, unless noted otherwise to remain. Replace irrigation piping and appurtenances to irrigate new and/or existing landscaping. Contractor shall be responsible for temporary landscape irrigation until such time that irrigation system is restored and operational.

3.07 DISPOSAL

Demolished materials become property of the Contractor and shall be removed from premises, except those items specifically listed to be retained by Owner.

A. Dispose of all demolished material, trash, debris, and other materials not used in the work in accordance with the regulations of jurisdictional authority.

B. It is recommended that all materials that are of a recyclable nature, be transported to a suitable legal recycling facility instead of a dump or refuse facility (unless they are one-in-the same).

C. Burning and Burying of Materials: NOT ALLOWED.

D. Haul Routes:

1. Obtain permits as required by jurisdictional agencies. Establish haul routes in advance, post flagmen for the safety of the public and workmen.
2. Keep streets free of mud, rubbish, etc.; assume responsibility for damage resulting from hauling operations; hold Owner free of liability in connection therewith.

E. Remove demolished materials and debris from site on a daily basis.

3.08 CLEANING

A. Upon completion of work of this Section promptly remove from the working area all scraps, debris.

B. Clean excess material from surface of all remaining paved surfaces and utility structures.

C. Power wash all concrete surfaces to remove stains, dried mud, tire marks, and rust spots.

END OF SECTION

SECTION 03 10 00

CONCRETE FORMING AND ACCESSORIES

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Formwork for cast-in-place concrete, with shoring, bracing, and anchorage.
2. Openings for other affected work.
3. Form accessories.
4. Stripping forms.

B. Related Sections:

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 03 20 00 – Concrete Reinforcing.
3. Section 03 30 00 – Cast-In-Place Concrete.
4. Section 32 16 00 – Site Concrete.

1.02 REFERENCES

A. CBC - California Building Code, (CCR) California Code of Regulations, Title 24, Part 2, Chapter 19A.

B. ACI 301 - Specifications for Concrete Construction.

C. PS-1-95 - Construction and Industrial Plywood.

1.03 SYSTEM DESCRIPTION

A. Design, engineer, and construct formwork, shoring, and bracing to meet design and code requirements, so that resultant concrete conforms to required shapes, lines, and dimensions.

1.04 QUALITY ASSURANCE

A. Construct and erect concrete formwork in accordance with ACI 301.

B. Regulatory Requirements:

1. Conform to CBC - California Building Code, (CCR) California Code of Regulations, Title 24, Part 2.

1.05 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Plywood: PS-1-95, BB Plyform grade, Class I, Exterior classification. Supply in large sheets of adequate thickness to support the imposed loads, but in no case less than 5/8" thick. General locations and finish levels as noted:
   1. Concrete not exposed to view: APA Plyform or clean and sound 1x8 sawn lumber.
   2. Smooth Concrete exposed to view: APA Plyform.
   3. Fiber Forms: Tubular column type spirally constructed of laminated plies of fiber.
   4. Elevated Floor/Roof Slabs: At discretion of the Contractor.
   5. Extruded Polystyrene Foam: board or shaped as required.

B. Lumber: Douglas Fir species; construction grade; with grade stamp clearly visible. Forms may be used for concrete surfaces that are unexposed and require no further surface applied materials. Lumber, if used, shall be clean and sound 2x (height as required) No. 2 grade or better.

C. Form Coating: Form shall be coated with nongrain-raising and non-staining types of form coating that will not leave a residual matter on the face of the concrete or adversely affect proper bonding of any subsequent paint or other surface applications. Form coating containing mineral oils or other non-drying materials will not be permitted for any concrete work.

D. Form Ties: Snap off metal of fixed length: leaving no metal within 1-1/2 inches of surface and no fractures, spalls or other surface defects larger than one-inch diameter; manufactured by Burke, Dayton Superior, or accepted equal.

E. Spreaders: Metal (no wood permitted).

2.02 ACCESSORIES

A. Form Ties: Snap-off metal of adjustable length; cone type; 1 inch break back dimension; free of defects that will leave holes no larger than 1 inch diameter in concrete surface.

B. Form Release Agent: Colorless material which will not stain concrete, absorb moisture, or impair natural bonding or color characteristics of coating intended for use on concrete.

C. Fillets for Chamfered Corners: Wood strips type; 3/4 x 3/4-inch size; maximum possible lengths.

D. Flashing Reglets: 26-gauge thick galvanized steel; longest possible lengths; release tape sealed slots; with alignment splines for joints; securable to concrete formwork; Type CO reglet manufactured by Fry Reglet www.fryreglet.com.

E. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required; of strength and character to maintain formwork in place while placing concrete.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verity lines, levels, and measurements before proceeding with formwork.

3.02 PREPARATION

A. Obtain Architect's approval for use of earth forms for footings.

B. Minimize form joints. Symmetrically align joints and make watertight to prevent leakage of mortar.

C. Arrange and assemble formwork to permit stripping, so that concrete is not damaged during its removal.

D. Arrange forms to allow stripping without removal of principal shores, where required to remain in place.

3.03 APPLICATION

A. Form Release Agent

1. Apply form release agent on formwork in accordance with manufacturer's instructions. Apply prior to placing reinforcing steel, anchoring devices, and embedded items.
2. Do not apply form release agent where concrete surfaces are scheduled to receive applied coverings which may be affected by agent. Soak contact surfaces of untreated forms with clean water. Keep surfaces wet prior to placing concrete.

3.04 CONSTRUCTION

A. Build and erect forms to conform to the required shapes, patterns, lines, grades and dimensions indicated. Forms shall be substantial and tight to prevent any leakage of mortar, properly braced and tied together to maintain their position and shape. Forms shall not deflect under the dead load weight of the plastic concrete or construction loads. Joints in forming material shall be butted tightly and shall bear on solid construction. Provide tool edges where indicated. Completed form work to be checked for grade and alignment to tolerances not exceeding 1/4” in 10’-0” for top of forms and not more than 1/4” in 10’-0” for vertical face.

B. Cast-in Items: Set in formwork all new sleeves, inserts, anchors, and similar items furnished and required under the work of other sections. Brace, anchor and support cast-in-items to prevent displacements and distortions.

C. Clean forms after each use and coat with release agent as required.

D. Space clamps, ties, hangers, and other form accessories so that working capacities are not exceeded by loads imposed from concrete or concreting operations.

E. Build openings into vertical forms at regular intervals if necessary to facilitate concrete placement, and at bottoms of forms to permit cleaning and inspection.

F. Build in securely braced temporary bulkheads, keyed as required, at approved locations of construction joints.

G. Slope tie-wires downward to outside of wall.

H. During and immediately after concrete placing, tighten forms, posts, and shores. Readjust to maintain grades, levels, and camber.

A. Inserts, Embedded Parts, And Openings

1. Provide formed openings where required for work embedded in or passing through concrete.
2. Coordinate work of other Sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.
3. Install accessories in accordance with manufacturer's instructions, level and plumb. Ensure items are not disturbed during concrete placement.

B. Earth Forms

1. Construct wood edge strips at top sides of excavations as indicated on drawings.
2. Provide forms for footings and foundation walls wherever concrete cannot be placed against solid earth.
3. Remove loose dirt and debris from form area prior to concrete placement.
4. Concrete for foundations may be placed directly into neat excavations provided the foundation trench walls are stable as determined by the Architect (Structural Engineer) subject to the approval of The Division of the State Architect.
5. When earth formed foundations are used, the minimum formwork shown on the drawings is mandatory to insure clean excavations prior to and during concrete placement.

C. Form Removal

1. Do not remove forms and bracing until concrete has sufficient strength to support its own weight and imposed loads.
2. Do not damage concrete surfaces during form removal.
3. Store reusable forms for exposed architectural concrete to prevent damage to contact surfaces.
4. Remove formwork in same sequence as concrete placement to achieve similar concrete surface coloration.
5. Do not remove forms until concrete has gained sufficient strength to carry its own weight and imposed loads and not displace.

3.05 CLEANING

A. Clean forms to remove foreign matter as erection proceeds.

B. Ensure that water and debris drain to exterior through clean-out ports.

END OF SECTION

SECTION 03 20 00

CONCRETE REINFORCING

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Reinforcing steel bars, welded steel wire fabric fabricated steel bar or rod mats for cast-in-place concrete.
2. Support chairs, bolsters, bar supports, and spacers, for supporting reinforcement.
3. Fibrous secondary reinforcement for light weight concrete topping.

B. Related Sections:

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 03 10 00 – Concrete Forming and Accessories.
3. Section 03 30 00 – Cast-In-Place Concrete.
4. Section 32 16 00 – Site Concrete.

1.02 REFERENCES

A. CBC - California Building Code, (CCR) California Code of Regulations, Title 24, Part 2, Chapter 19A (ACI 318).

B. ACI 301 - Specifications for Concrete Construction.

C. ACI 315 (SP-66) – Guide to Presenting Reinforcing Steel Design Details.

D. ACI 318 - Building Code Requirements for Structural Concrete and Commentary.

E. ASTM A1064-24 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.

F. ASTM A1064-24- Welded Steel Wire Fabric for Concrete Reinforcement.

G. ASTM A615-24 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.

H. ASTM A706-24 - Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement.

I. ASTM C1116-23 - Standard Specification for Fiber-Reinforced Concrete.

J. AWS D1.4 - Structural Welding Code - Reinforcing Steel.

K. CRSI - Manual of Practice.

L. CRSI - Placing Reinforcing Bars.

1.03 QUALITY ASSURANCE

A. Perform concrete reinforcement work in accordance with CASI Manual of Standard Practice.

B. Conform to ACI 301 and ACI 315 (SP-66).

C. Conform to CBC California Building Code, (CCR) California Code of Regulations, Title 24, Part 2.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Submit mill test certificates of supplied concrete reinforcing, indicating physical and chemical analysis, to testing laboratory.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Items as identified on the drawings and as otherwise specified herein.

A. Reinforcing Bars: ASTM A615-24 with Supplement S1, marked "S", Grade 60 for #4 bar and larger, Grade 60 for bars smaller than #4.

B. Welded Reinforcement: ASTM A706, Grade 60, deformed bars, unfinished.

C. Welded Steel Wire Fabric: ASTM A1064-24 plain type; coiled rolls; uncoated finish. Furnish 6x6 W2.1xW2.1 welded wire fabric in flat sheets; rolls will not be allowed.

D. Steel Wire: ASTM A1064-24, plain, cold drawn steel.

2.02 ACCESSORIES

A. Tie Wire: Minimum 16-gauge annealed type.

B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during installation and placement of concrete including load bearing pad on bottom to prevent vapor barrier puncture. Comply with CRSI “Recommended Practice for Placing Bar Supports, Specifications and Nomenclature, Latest Edition”.

C. Chairs, Bolsters, Bar Supports, Spacers Adjacent to Architectural Concrete Surfaces: Plastic coated sized and shaped as required. Wood is not permitted as supports for reinforcing. Concrete dobies allowed at foundations and footings only.

2.03 FABRICATION

A. Fabricate in accordance with CRSI manual.

B. Steel reinforcement shall not be bent or straightened in a manner that will injure the material. Bars with kinks or bends not shown on the Drawings shall not be used. Heating of the bars for bending will not be permitted. Rebar shall not be field bent or straightened without SEOR review.

1. Spacers and chairs shall be as specified or detailed and spaced such that steel reinforcement will be carried without deflection. Chairs shall center reinforcing vertically at center of slab thickness.
2. Concrete blocks or “dobies” may be used to support bottom layer of steel in floor slabs on grade.
3. Bars shall be in long lengths with laps and splices as shown. Offset laps 8'-0" in adjacent bars. Place steel with clearances and cover as shown. Bar laps shall be as indicated on the drawings. Tie all laps and all intersections with specified wire. Maintain clear space between parallel bars not less than 1-1/2 times nominal diameter for round bars, but in no case shall clear space be less than 1-1/2", nor less than 1-1/2 times maximum size concrete aggregate.
4. Install welded wire fabric in lengths as long as possible. Lap adjoining pieces at least one full mesh and lace splices with wire ties. Offset laps of adjoining widths to prevent continuous laps in either direction.
5. Cut bars true to length with ends square and free of burrs.

B. Drawing Notes: Refer to notes on Drawings for additional reinforcement requirements.

C. Welding of reinforcing bar shall be performed only where indicated on plans and in compliance with AWS D1.4. All welding of reinforcement is to be inspected in accordance with CBC Table 1705A.2.1, Item 5(b).

D. Fabricate in accordance with ACI 315 (SP-66), providing concrete cover specified in Section 03 31 00.

E. Locate reinforcing splices not indicated on Drawings at points of minimum stress. Indicate location of splices on shop drawings.

F. Weld reinforcing bars in accordance with AWS D1.4.

G. Fusion Welding
1. Fusion welding of holding wires to ties, stirrups, and hoops in beams, columns, and grade beams to preassemble reinforcing cages is permissible. The holding wire area shall not exceed 5% of the beam, column, or grade beam cross sectional longitudinal steel area. Fusion welding is not allowed to longitudinal reinforcing steel in any beam, column, or grade beam.

2. Fusion welding of holding wire to the ends of the reinforcing steel places in mats (spread footings, slab reinforcement, etc.) is permitted provided the fusion weld occurs within 6 bar diameters of the free end of the bar (e.g. not allowed at the end of coupled, T-headed, or weld splice bars.)
3. Fusion welding of holding wires shall not occur on a bent portion of a reinforcing bar. Bars may not be bent where a fusion weld occurs.
4. Holding wires shall conform to ASTM A496.
5. All reinforcing steel to be welded shall comply with ASTM A706.
6. Submit complete structural plans indicating which members will use fusion welding process for assembly. Provide complete structural details indicating the size of stirrups and holding wires and welding requirement. Submit a complete shop welding program which includes the following:
   a. Type of the specific fusion welding machine.
7. Periodic inspection protocol of the in-plant welding. This information shall be submitted to the Structural Engineer (SEOR) and the Owner's Testing Agency for approval. Fusion welding and fabrication is not permitted until approved by the SEOR.

2.04 SOURCE QUALITY CONTROL AND TESTING

A. Source Quality Control and Testing will be performed under provisions of Section 01 45 00 and as required by the Division of the State Architect and District Inspector.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Before placing concrete, clean reinforcement of foreign particles or coatings.

B. Place, support, and secure reinforcement against displacement. Do not deviate from alignment or measurement.

C. Mix fibrous reinforcement into concrete material according to Section 03 30 00.

D. Do not displace or damage vapor barrier required by Section 03 30 00. Protect rebar in place from damage from other trades. Protect rebar from rusting from exposure to the elements.

3.02 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Section 01 45 00 and as required by the Division of the State Architect and District Inspector.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.01 SUMMARY

A. SECTION INCLUDES:

1. Concrete Formwork.
2. Reinforcement of Concrete.
3. Concrete Placing and Finishing.

B. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 03 10 00: Concrete Forming and Accessories.
3. Section 03 20 00: Concrete Reinforcing.
4. Section 32 16 00: Site Concrete.

1.02 REFERENCES

A. CBC - California Building Code, (CCR) California Code of Regulations Title 24, Part 2, Chapter 19A.

B. CBC - California Building Code, (CCR) California Code of Regulations, Title 24, Part 2, California State Accessibility Standards.

C. ACI 117-10 - Specification for Tolerances for Concrete Construction and Materials.

D. ACI 211.1-91 - Standard Practice for Selecting Proportions for Normal Weight, Heavy Weight and Mass Concrete.

E. ACI 301-16 - Specifications for Structural Concrete for Buildings.

F. ACI 302.1R-15 - Guide to Concrete Floor and Slab Construction.

G. ACI 304R-00 - Guide for Measuring, Mixing, Transporting and Placing Concrete.

H. ACI 305R-10 - Hot Weather Concreting.

I. ACI 306R-16 - Cold Weather Concreting.

J. ACI 308-16 - Standard Practice for Curing Concrete.

K. ACI 309R-05 - Guide for Consolidation of Concrete.

L. ACI 318-14 - Building Code Requirements for Structural Concrete.

M. ASTM A615-24 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.

N. ASTM C33-24a - Concrete Aggregates.

O. ASTM C94-25 - Ready-Mixed Concrete.

P. ASTM C114-24 - Methods of Chemical Analysis of Hydraulic Cement.

Q. ASTM C150-24 - Portland Cement.

R. ASTM C260-24 - Air Entraining Admixtures.

S. ASTM C289-07 - Standard Test Method for Potential Alkali-Silica Reactivity.

T. ASTM C309-19 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

U. ASTM C330-23 - Standard Specification for Lightweight Aggregates for Structural Concrete.

V. ASTM C494-024 - Chemical Admixtures for Concrete.

W. ASTM C567-19 - Standard Test Method for Determining Density of Structural Lightweight Concrete.

X. ASTM C595-25 - Standard Specification for Blended Hydraulic Cements.

Y ASTM C618-25a - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.

Z. ASTM C932-06(2024) - Standard Specification for Surface-Applied Bonding Compounds for Exterior Plastering.

AA. ASTM C989-25 - Standard Specification for Slag Cement for Use in Concrete and Mortars

BB. ASTM C1315-25 - Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete.

CC. ASTM C1602-22 - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete

DD. ASTM D226-22 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

EE. ASTM D1751-23 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).

FF. ASTM E96-24a - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials.

GG. ASTM E1155-23 - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers.

HH. ASTM E1155-23 - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers.

II. ASTM E1643-24 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.

JJ. ASTM E1745-17(2023) - Standard Specifications for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs.

KK ASTM F710-22 - Standard Practice for Preparing Concrete Floor to Receive Resilient Flooring.

LL. ASTM F1869-23 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

MM.National Ready Mix Concrete Association - Plant Certification Program.

1.03 QUALITY ASSURANCE

A. All Concrete for the project shall be controlled concrete of specified strengths, of uniform color, and free from defects liable to adversely affect strength, durability or appearance of the structure or its components.

B. Requirements of Regulatory Agencies: The quality and design of structural concrete shall comply with the requirements of the California Building Code, except where more stringent requirements are specified.

C. Workmanship: Materials and methods used for the production and placement of concrete shall be such as to assure the specified quality and shall conform to applicable requirements of the Building Code for Reinforced Concrete (ACI 318) of the American Concrete Institute, except as otherwise specified in this Section.

1. All materials, components, assemblies, workmanship and installation are to be observed by the Owner’s Project Inspector. Work not so inspected is subject to uncovering and replacement at no expense to the Owner.
2. Proper installation of partitions and equipment requires the floor finish to be level and smooth throughout. Extreme care shall be exercised during all floating and troweling operations to check levels often.

3. Any concrete work which does not comply with tolerances and elevations shown on drawings will be cause for rejection of all work affected, and, if so rejected, such work shall be removed and replaced at no increase in cost to the Owner.

D. Removal and replacement of Defective Concrete Surfaces shall be done in the following manner when, in the opinion of the Architect, such defects may be removed and replaced at no additional cost to the Owner.

1. Rock pockets, voids, spalls, cracks (superficial and structural) and exposed reinforcing shall be removed and replaced.
2. Floor surfaces which exceed the allowable variation in plane or level as specified herein shall be ground, filled, or replaced to obtain the level and plane required. Fill materials, where required, shall be of type approved by the Architect.
3. Surfaces which are not plumb and square, or which do not conform to the lines and levels indicated shall be removed and replaced.

E. Uniformity of Concrete: All aggregates shall be measured by weight and the proportion of water to cement shall be accurately controlled by either automatic measuring devices or calibrated containers. All concrete placed shall be uniform strength and color appearance as well as surface texture.

F. Screeds shall be provided at all construction joints as required to ensure installation of concrete to lines and elevations noted.

G. Ready-Mixed Concrete: ASTM C94-25 except as otherwise specified herein. Mix and deliver in accordance with the requirements set forth in ASTM C94 and ACI 301. Continuous Batch Plant inspection is required per CBC Section 1705A.3.3. Contractor may request waiver of batch plant inspection in accordance with CBC Section 1705A.3.3.1 provided the following is met:

1. Approved Testing Laboratory shall check the first batching for each class of concrete and furnish mix proportions to the Licensed Weighmaster.
2. Licensed Weighmaster to positively identify materials as to quantity and to certify to each load by ticket.
3. Ticket shall be transmitted to Project Inspector by truck driver with load identified thereon. Project Inspector will not accept load without load ticket identifying mix and will keep daily record of pours, identifying each truck, its load and time of receipt and will transmit two copies of record to the Division of the State Architect (DSA).
4. Do not add water at the site to concrete mixes with a maximum specified WCR unless the water content at batch time provides for a WCR less than specified and this provision, including the quantity of water which may be added at the site, is specifically noted on the Mix Design and Certification by the mix preparer.
5. At end of project, Weighmaster shall furnish affidavit to DSA on form satisfactory to DSA, certifying that all concrete furnished conforms in every particular and to proportions established by mix designs.

H. Concrete Preplacement Inspection: Concrete shall not be poured until the forms, reinforcement, and preparations are complete and have been reviewed by the Project Inspector.

I. Tests: For structural concrete, the Testing Lab shall take four (4) test cylinders of concrete each day for every 50 cubic yards of concrete or fraction thereof being placed. Cylinders shall be made and stored as per instructions given by the testing laboratory and shall be in accordance with ASTM Specifications C31-25b and C39-24. Cylinders shall be tested for ultimate compressive strength of concrete with one cylinder tested at the age of 7 days and two (from the same batch) to be tested at the age of 28 days, with one cylinder held as a spare for future testing if needed. Tests shall be made by a recognized test laboratory selected by the Owner and approved by the Architect.

1. Cylinders not meeting the required design stresses shall indicate defective concrete and such concrete shall be removed and replaced at no increase in cost to the Owner. Core tests requested by the Contractor to establish design stresses, when cylinder tests indicate defective concrete, shall be paid for by the Contractor.
2. Batch plant inspection as required by the DSA Structural Tests and Inspections Form SSS 103-1.

J. Floor Flatness: Provide certification of floor slab flatness per the requirements of Part 3 below.

K. Preinstallation Meetings.

1. Preinstallation Conference: Conduct conference at Project site.
   a. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
      1) Contractor's superintendent.
      2) Independent testing agency responsible for concrete design mixtures.
      3) Ready-mix concrete manufacturer.
      4) Concrete Subcontractor.
      5) Special concrete finish Subcontractor.
      6) Inspector.
      7) Owner’s Representative.
      8) Architect.

   b. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, semirigid joint fillers, forms and form removal limitations, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, methods for achieving specified floor and slab flatness and levelness, floor and slab flatness and levelness measurement, and concrete protection.
   c. Sign-in sheet shall be provided at time of meeting to document attendees.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Manufacturer's Data: Submit manufacturer's product data with application and installation instructions for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, joint systems, chemical floor hardeners, and others as may be requested by the Architect.

C. Shop Drawings: Shop drawings sheet size shall be 24" x 30" minimum.

1. Reinforcing Steel: The correctness of the bending diagrams is the responsibility of the Contractor. Identify such shop drawings with a reference thereon to sheet and detail numbers from the contract drawings. No reinforcing steel shall be fabricated without approved shop drawings.
2. Construction joint layout per Part 3 below. Contractor to submit plan based upon design team's layout as shown on drawings. Provide verification that the joint layout will limit the risk of slab cracking. Plans shall include control, and expansion joints.

D. Concrete Mix Design: Submit proposed mix design prepared by concrete supplier. Mix design must be submitted to Owner for review and acceptance by a recognized independent testing lab, for all structural concrete.

E. Historical test data on all proposed mix designs including 28-day strength reports, and verification of aggregate and concrete shrinkage.

F. Test reports for Floor Flatness and Floor Levelness shall be submitted for review after first slab has been poured and prior to subsequent slabs being poured.

1.05 JOB CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required by construction activities.

PART 2 – PRODUCTS

2.01 CONCRETE MATERIALS

A. Portland Cement: ASTM C150-24, Type II, low alkali, Type II/V, Type V, ASTM C595 Type 1L. All cement used shall be of one manufacturer. Other blended mix designs are not acceptable.

1. Use Type IIA cement if pumping of concrete is selected and permitted for placing of concrete.
2. All cement shall contain not more than 0.6 percent total alkali when calculated as sodium oxide as determined by "Methods of Chemical Analysis of Hydraulic Cement", ASTM C114-24.

B. Blended Cement: ASTM C595-25, Type IL (MS or (HS).

1. All cement shall not contain more than 0.6 percent total alkali when calculated as sodium oxide as determined by "Methods of Chemical Analysis of Hydraulic Cement", ASTM C114-24.

C. Supplementary Cementitious Materials:

1. ASTM C618-25a Class N or Class F materials (Class C is not permitted).

2. ASTM C989-125 Ground Granulated Blast Furnace Slag.

D. Water: ASTM C1602-22 Clean and free from deleterious amounts of acids, alkalis, salts and organic matter.

E. Concrete Aggregates: ASTM C33-08 except as otherwise specified hereinafter. All aggregates shall be nonreactive and nondegenerative, and shall consist of sound crushed rock, washed gravel, or a combination of both.

1. Aggregate size for structural slabs shall be 1-1/2 inch. Aggregate size for other structural concrete shall be between 3/4 inch and 1-1/2-inch maximum.
2. Aggregate shall be saturated surface dry by batch plant.
3. Modify fine aggregates when air entrained concrete is used in accordance with Paragraph 4.2.4 of ASTM C33-08.
4. Aggregate shall result in shrinkage of concrete not exceeding .048 percent at 28 days. Testing lab shall verify aggregate and concrete shrinkage.
5. Do not use fine or coarse aggregates that contain substances that are known to cause spalling or adverse reactions in the concrete.

F. Cementitious Materials:

1. Fly Ash: 40 percent replacement maximum.
2. Slag Cement: 50 percent maximum.
3. Combined Fly Ash and Slag Cement: 50 percent replacement maximum.

E. Air Entraining Agents shall be used in concrete at the contractor's option. The maximum entrained air content shall be no more than 4 percent + 1 percent by volume. Sika AER, Master Builders Micro Air, Darex AEA, Protex AEA or approved equal meeting ASTM C260-24.

F. Admixtures: Except for air entraining agents, and water-reducing admixtures, no other admixtures shall be used without written approval from the Architect. Where such agents are permitted, they shall be a type approved and used only as directed by the Architect and at no increase in cost to the Owner.

1. Calcium chloride will <u>not</u> be permitted for use in concrete under any circumstances.
2. Air Entraining Agents: ASTM C260. Use where specified. The maximum entrained air content shall be no more than 4 percent + 1 percent by volume unless noted otherwise. Approved air entraining agents are Sika AER, Master Builders Micro Air, Darex AEA, Protex AEA or approved equal.
3. Water Reducing Admixtures: ASTM C494-24 Type A, D, E, F, or G and ACI 318, Section 3.6. Use where specified.
4. Or as otherwise required by project conditions.

2.02 CRUSHED ROCK BASE:

A. Under all new concrete ramps and paving, or as otherwise indicated on the Drawings, provide a minimum of 4 inches of crushed rock fill. Crushed rock fill shall be clean gravel of 1" max. size and have no material passing through a No. 4 sieve.

2.03 JOINT MATERIAL:

A. Provide 3/8" wide fiber expansion joint material, Model No. 320-F, as manufactured by W.R. Meadows or approved equal.

B. Provide Snap-Cap as manufactured by W.R. Meadows or approved equal. Snap-Cap shall have a top plastic edge that can be used for leveling concrete. Once concrete has set up, top edge of Snap-Cap can be pulled free and discarded. Joint shall then be sealed.

C. Joint sealing material shall be a two-component, self-leveling, polyurethane elastomeric sealant. Product shall be Sikaflex 2cSL as manufactured Sika Corporation, or equal. Color shall be chosen by Architect from the full range of manufacturer's standard colors.

2.04 RELATED MATERIALS

A. Concrete Adhesive and Bonding Agent: "Concresive #1001-LPL" (1-1/2-hour maximum pot life), an epoxy polysulfide type concrete adhesive as manufactured by Master Builders or approved equal.

B. Liquid Curing Compound: W.R. Meadows, Product: "Vocomp-20" or approved equal.

C. Bonding Adhesive: White Cap Glue, Burke Bondcrete-S or approved equal; use as a modifier for patching and overlays up to 1/2" thick or approved equal.

D. Doweling Epoxy: Hilti "HIT-RE 500" (ICC-ES ESR-3814), Simpson Strong-Tie "SET-3G" Epoxy (ICC-ES ESR-4057) or approved equal.

1. Anchor rods shall be furnished with a 45-degree chisel point on one end to allow for easy insertion into adhesive filled hole and manufactured to meet the requirements of ASTM A36. Nuts and washers shall be furnished to meet the requirements of the anchor rod specifications noted above.
2. Install per manufacturer's recommendation; use stainless steel for all exterior work.
3. Testing required as noted in the Structural Drawings.

E. Vapor Barrier: Stego Wrap, 15 mil. vapor barrier system, with a Class A rating, and perm rating not to exceed 0.01 perms; by Stego Industries of San Juan Capistrano, CA (877) 464-7834, VaporGuard by Reef Industries (713) 507-4250., Sundance 15 mil Vapor Barrier by Sundance Inc. (855) 300-7156, or 15 mil Husky, Yellow Guard, Vapor Barrier by Poly-America (800) 527-3322. No other substitutions will be accepted. System to include Stego Mastic, Stego "Crete Claw Tape" and pipe boots, or approved equal by the specified manufacturers. Conform to ASTM 1745.

F. Patching Mortar: Meadow-Crete GPS, one-component, trowel applied, polymer enhanced, shrinkage-compensated, fiber reinforced, cementitious repair mortar for horizontal, vertical and overhead applications as manufactured by W.R. Meadows or approved equal.

G. Non-shrink Grout: Masterflow 713 Plus by Master Builders or approved equal. Premixed, non-metallic, no chlorides, non-staining, and non-shrinking per CRD-C621, Corps of Engineers Specification and ASTM C 1107, Grades B and C.

2.05 CONCRETE DESIGN

A. The concrete mix shall be proportioned to produce a minimum ultimate compressive strength at 28 days of 3,000 psi for structural concrete and 3,000 psi for all other concrete (Section 32 13 00) unless otherwise noted.

1. Laboratory Mix Design: Concrete designs, using Methods B or C, Section 1905.1.1 of the CBC, Title 24, shall be reviewed by the Testing Laboratory. The concrete mix designs reviewed by the Testing Laboratory and approved by the Project Architect or Structural Engineer shall be used by

the Contractor. Contractor shall provide samples of aggregates as required by the laboratory to review the mix designs. Laboratory shall also include shrinkage tests.
2. Water Reducing Admixture: All concrete shall contain a water reducing admixture.
3. Air Entraining Agent: Include in all concrete in all exterior concrete to result in concrete at point of placement having an air entrainment of 4% (+/- 1%).
4. Maximum water - cement ratio at point of placement: 0.45.

B. Ready-Mixed Concrete: ASTM C94-25 except as otherwise specified herein.

1. Transit-mixed concrete shall be mixed for a period of not less than 10 minutes at a peripheral drum speed of approximately 200 feet per minute, and mixing shall be continued until discharge is complete. At least 3 minutes of the mixing period shall be at the job. Transit mixers shall be equipped with water measuring devices consisting of either accurately calibrated water tanks or water meters.
2. When outside air temperature is between 85 degrees and 90 degrees, reduce mixing and delivery time from 90 minutes to 75 minutes. When outside air temperature is above 90 degrees, reduce mixing and delivery time to 60 minutes.

C. Job Mixing: The capacity of the mixer shall be such that it will handle one or more full sack batches. No split sack batches will be permitted except when all materials are weighed. The rated capacity of the mixer shall not be exceeded. The mixing drum shall be equipped with an automatic timing and locking device and with an accurate water gauge for measuring the amount of water used. Mixing time of each batch shall be at least 1-1/2 minutes after all ingredients are in the mixer.

D. Slump of Concrete: The slump of concrete as determined by the Standard Test Method for Slump of Hydraulic Cement Concrete ASTM Designation C-143-20 shall be as follows:

1. All Concrete: 4 inches maximum, plus/minus 1 inch (5 inch maximum).

PART 3 – EXECUTION

3.01 CONCRETE PLACEMENT

A. Surrounding Conditions: Before any concrete is placed, the following items of work shall have been completed in the area of placing.

1. Forms shall have been erected, braced, cleaned, sealed, lubricated if required, and bulkheaded where placing is to stop.
   a. Any wood forms other than plywood shall be thoroughly water soaked before placing any concrete. The wetting of forms shall be started at least 12 hours before concreting.
2. Reinforcing steel shall have been placed, tied, supported, and, at time concrete is placed around it, shall be cleaned of rust, scale, mill scale or other coatings that will destroy or reduce bond.
3. Embedded work of all trades shall be in place in the forms, tied and braced.
4. The entire place of deposit shall have been cleaned of dirt, chips, sawdust, rubbish, debris, hardened concrete, and other foreign matter before concrete is deposited therein. No wooden ties nor blocking shall be left in concrete except where indicated for attachment of other work.

5. Concrete surfaces to which fresh concrete is to be bonded shall be roughened as indicated. Surfaces shall be brush cleaned to remove all dust and foreign matter and to expose the aggregate, and then coated with the bonding adhesive herein specified.

B. Conveying Concrete from mixer to forms shall be as rapid as possible.

1. Ready-mixed concrete shall be mixed and delivered in accordance with ASTM C94 /-25. A delivery ticket shall be furnished for each load of ready-mix or transit-mix concrete. A copy of each delivery ticket shall be handed to the job superintendent at the time of delivery and unloading. A record copy of the delivery tickets shall be forwarded to the Architect for their files.
2. Conveying equipment shall be of a sufficient capacity to ensure a continuous flow of concrete to the placing point without separation or loss of materials. Carts and buggies shall be equipped with pneumatic tires. Runway supports shall not bear on reinforcing or fresh concrete. All conveying equipment shall be thoroughly cleaned before beginning and at frequent intervals during the placing of the concrete.
   a. Chutes, if employed, shall slope not less than 4" or more than 6" per foot of horizontal run.

3. Exercise care not to spill concrete on forms & reinforcing steel during the conveying operations. Where such spillage or splattering occurs, the surfaces shall be thoroughly cleaned before concrete hardens.

C. Placing Concrete: Notify the Architect 48 hours in advance of beginning of pouring operations. Under no circumstances shall concrete that has partially hardened be deposited on the work. No concrete shall be placed during rainy weather without the Architect's approval.

1. The Project Inspector shall keep a record on the site of the time and date of placing the concrete in each portion of the structure in accordance with CBC Section 1705A.3.6. The record shall be kept until the completion of the structure and a copy provided to the Architect and DSA.

2. Before starting new pour on or against concrete that has hardened, forms shall be retightened, and the hardened concrete roughened and thoroughly cleaned of foreign matter and any laitance by sandblasting. Just ahead of the new pour, slush joints with a 2" layer of grout of the designated concrete mix minus 50 percent of the large aggregate.

3. Reinforcing steel exposed to the sun shall be cooled by a water spray prior to the placing of concrete.

4. No adjustment of steel reinforcement will be permitted during the placement of concrete.

5. Concrete shall be scheduled so that the placing is a continuous operation for the completion of each section between predetermined construction joints. If a planned concreting operation cannot be carried on continuously, the concreting shall stop at temporary bulkheads. Locate where resulting construction joints shall be as shown on the Drawings or as approved by the Architect. Prior to placing of concrete for any concrete slabs, the moisture content of the subgrade below the slabs shall be adjusted to at least optimum moisture.

6. Deposit the concrete in forms as nearly as practicable in its final position to avoid flowing and maintain until completion of the unit an approximate horizontal plastic surface. Thoroughly compact all concrete during placing operations, thoroughly around reinforcement, embedded fixtures, or accessories, and into the corners of forms to eliminate air pockets and honeycombing. Compacting shall be done with mechanical vibrators. Vibrators shall not be used

to cause concrete to flow horizontally. Thoroughly compact concrete to the forms to release the air and secure full contact of the concrete with the forms.

7. Hot Weather Concreting: Concrete placing and finishing operations during hot weather shall be done as quickly as possible. Ample personnel shall be available to manage and place the concrete immediately after its mixing or delivery to the site of the work. Concrete shall be placed in layers thin enough and over areas small enough to ensure complete bond and union of adjacent layers, and thus prevent "cold joints".
   a. At air temperature of 80 degrees Fahrenheit or above, the following precautions should be taken:
      1) In no case shall the temperature of the concrete exceed 90 degrees Fahrenheit when placed in the work.
      2) If necessary, to produce and maintain concrete at an acceptable temperature, chopped or crushed ice shall be added directly into the mixer up to 50 percent by weight of the mixing water used, the weight of the ice being included in batch weight of the mixing water. The ice shall be added at such a rate and in such a manner that it will be completely melted by the time concrete is mixed.
      3) Stockpiled aggregates shall be saturated and kept surface moist by continuous fog spray or by intermittent sprinkling.
      4) Forms, reinforcements, and subgrade surfaces shall be wet down immediately before concrete is placed in contact therewith. Remove all excess water before placing concrete. Wetting down of areas around the work to cool the surrounding air and increase the humidity is recommended.

8. Cold Weather Requirements: Do not place concrete when ambient temperature is below 40 degrees Fahrenheit and falling.

3.02 CONCRETE FINISHING

A. All Concrete Work, except as otherwise specified, shall be of a quality that will present a finished appearance upon the stripping of the forms. Only a minimum of patching and finishing should be necessary as required to fill holes left by form ties and to remove any fins or minor irregularities left by the joints in the forms. Except as otherwise specified, all concrete surfaces shall be finished as follows:

B. Float finish: Begin float finish when bleed water sheen has disappeared, and the 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 within a tolerance as specified in 3.04-C. Cut down high spots and fill low spots. Refloat surface immediately to a uniform granular surface.

   1. Final Finish: Provide a medium textured broom finish for all exterior surfaces by drawing a soft bristle broom across concrete surface perpendicular to line of traffic to provide a uniform fine line texture finish.
   2. No magnesium bull floats allowed on non-air entrained concrete.

C. Floor Flatness and Floor Level Tolerances for slab on grade:

   1. An independent testing agency will inspect finished slabs for compliance with specified tolerances.

2. Minimum F(F) Floor Flatness and F(L) Floor Levelness Values at slabs on grade and shored slabs:
   a. Exposed to View and Foot Traffic: F(F) of 35; F(L) of 25.
   b. Under Thick-Bed Tile: F(F) of 20; F(L) of 15.
   c. Under Carpeting: F(F) of 25; F(L) of 20.
   d. Under Thin Resilient Flooring and Thinset Tile: F(F) of 35; F(L) of 25.

3. Measure F(F) Floor Flatness and F(L) Floor Levelness in accordance with ASTM E1155 (ASTM E1155M-23), within 72 hours after slab installation; report both composite overall values and local values for each measured section.
4. Correct the slab surface if composite overall value is less than specified and if local value is less than two-thirds of specified value or less than F(F) 13/F(L) 10.
5. Correct defects by grinding, floating with leveling compound, or by removal and replacement of the defective work. Areas requiring corrective work to be identified by Contractor and a repair/replacement plan shall be submitted for review by Architect. Re-measure corrected areas by the same process.

D. Curb Finishing: Steel trowel as described for slab finishing above.

E. Final Tooling: Tool edges of paving, gutters, curbs, and joints formed in fresh concrete with a jointing tool to a radius of 1/4". Repeat tooling of edges and joints after applying surface finishes. Eliminate tools marks on all concrete surfaces.

F. Form removal requirements – see SS 03 10 00.

3.03 CONSTRUCTION JOINTS

A. NO SOFTCUT (SAWCUT) CONTROL JOINTS ALLOWED.

B. Construct contraction, construction, and isolation joints true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to the centerline unless otherwise indicated.

C. Joints at Existing Concrete: All joints between existing concrete and new concrete or at sawcut locations through existing slabs are to include dowels at a minimum of #4 bars @ 4'-0" on center, 18" maximum from the ends, epoxy set into existing concrete a minimum of 6" in length at the centerline of existing concrete slab.

D. Contraction Joints (Control Joints): Provide weakened-plane contraction joints, sectioning concrete into areas indicated. Construct contraction joints for a depth equal to at least 1/4 of the concrete thickness unless otherwise noted on drawings. Form in fresh concrete by grooving and finishing each edge of joint with a radiused jointer tool. Joints shall be formed as soon as concrete can support operator and equipment and no more than 4 hours after concrete placement. **Joints to be spaced at 10' on center maximum or as shown on the drawings.**

E. Construction Joints: Set construction joints at side and end terminations of concrete placement and at locations where placement operations are stopped for more than 1/2 hour unless placement ends at isolation joints.

   1. Provide preformed galvanized steel or plastic keyway-section forms or bulkhead forms with keys. Use Burke "Keyed Kold Joint Header Form" or approved equal. Embed keys at least 1 1/2" into concrete.

2. Provide slip dowels across construction joints.

F. Isolation Joints (Expansion Joints): Form isolation joints of performed joint filler strips abutting concrete curbs, catch basin, utility access holes, inlets, structures, walks, other fixed objects, and where indicated.

1. Extend joint fillers full width and depth of joint, not less than 1/2” or more than 1” below finished surface where a joint sealant is indicated. Place top of removable joint filler flush with finished concrete surface.
2. Protect top edge of joint filler during concrete placement with metal, plastic, or other temporary, removable performed cap.
3. After concrete has cured, remove cap exposing top edge of fiber joint filler, and apply joint sealant.

3.04 PUMPING OF CONCRETE (may be permitted for concrete, providing):

A. The Contractor engages a testing laboratory to design concrete mixes for pumping. Trial batches shall be made and tested as required hereinbefore for typical concrete.

B. The quality and proportioning of aggregates for pumping conditions shall be determined in accordance with ACI, Recommended Practice 613. Aggregate proportioning must be tailored to the pump intended for use.

C. When starting a pump operation, actual pumping of concrete shall be preceded by a mortar mix (concrete without coarse aggregate) for the purpose of lubrication.

D. All mortar and concrete leakage resulting from pumping operations shall be removed from formwork, reinforcing steel and any finished surface.

3.05 CURING

A. Protect freshly placed concrete from premature drying and excessive cold or hot temperature. Comply with the recommendations of ACI 306R for cold weather protection and ACI 305R for hot weather protection during curing.

B. Evaporation control is to be implemented in hot, dry and windy weather by protecting concrete from rapid moisture loss before and during finishing operations with an evaporation control material. Apply in accordance with manufacturer’s instructions after screeding and bull floating, but not before floating.

C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

D. Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination.

1. For moisture-curing, keep surfaces continuously moist for not less than 7 days with water, a continuous water-fog spray, or absorptive cover kept wet continuously wet.
2. For moisture-retaining-cover, cover concrete with moisture retaining cover with side and end laps sealed.
3. For curing compound, apply in accordance with manufacturer’s instructions. Recoat areas subjected to rainfall within 3-hours after initial application.

3.06 CLEANING AND PROTECTION

A. Clean all surfaces and leave in satisfactory condition to receive final finish surface treatment.

B. Protect concrete surfaces from damage by tools, equipment, material, and workers. No traffic, shoring or other loading will be permitted until concrete has hardened sufficiently to prevent injury to finish and strength, but at least 14 days.

1. Remove surface stains and spillage of materials as they occur.
2. Sweep concrete and wash free of stains, discolorations, dirt, and other foreign material prior to final inspection.

3.07 INSPECTION

A. Approval of reinforcing steel, after installation, must be received from Project Inspector. Architect, Structural Engineer, and DSA must be notified 48 hours in advance of beginning concrete placement operations. Inspection of welding will be done by laboratory.

B. There will be initial or preliminary inspection of the finished concrete slabs by the Project Inspector and/or Architect for overall finish.

C. Slabs shall be measured for FF and FL as required by 3.02-C and findings submitted to Architect.

D. New pours will be reviewed for cracks. If during this inspection, cracked sections are found and determined unacceptable by the District, that section should be removed and replaced.

E. Final concrete inspection: Prior to occupancy, concrete will be reviewed by Owner and Architect. If any cracks, spalls, exposed finish layer seperation, etc. are identified, that section(s) shall be removed and replaced.

END OF SECTION

SECTION 06 10 00

ROUGH CARPENTRY

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Description of requirements for materials, fabrications and installation of rough carpentry and associated items (except that which is specified elsewhere) indicated on Drawings and necessary to complete the work. Items include, but are not necessarily limited to, the following:
   a. Blocking, Backing, Stripping, Furring, and Nailers.
   b. Rough Hardware.
   c. Wood Framing.
   d. Preservative Treatment.
   e. Metal Fabrications.

B. Related Sections

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 03 30 00: Cast-in-Place Concrete.
3. Section 05 50 00: Metal Fabrications.

C. References

1. Chapter 23, California Building Code (CBC), 2025, as adopted by the California Division of the State Architect (DSA).
2. American Society for Testing and Materials (ASTM).
3. Lumber: West Coast Lumber Inspection Bureau (WCLIB), Rule 17, Standard Grading Rules for West Coast Lumber.
4. Lumber: Western Wood Products Association (WWPA); Western Lumber Grading Rules.
5. Plywood: American Plywood Association (APA) Plywood Specifications and Grades and Voluntary Product Standard DOC PS 1 “Construction and Industrial Plywood”.
6. Wood Preservative: American Wood Protection Association (AWPA), Standard U1.
7. AWC NDS – National Design Specification for Wood Construction.
8. AWC SDPWS – Special Design Provisions for Wind and Seismic.

1.02 QUALITY ASSURANCE

A. Manufacturer data: Submit product data for all materials specified under this section and as applicable to each site.

B. Coordinate the work of all trades to ensure proper placement of all materials, anchors, etc., as well as providing for openings and anchors for the installation of surface mounted materials and equipment.

C. Qualifications of Workmen: Provide sufficient skilled workmen and supervisors who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of construction involved and the materials and techniques specified.

D. Rejection: In the acceptance or rejection of rough carpentry, no allowance will be made for lack of skill on the part of the workmen.

E. Design Criteria: Pressure treatment shall not adversely affect application, permanence, or appearance of finish paint system.

1.03 SUBMITTALS

A. Submit per the requirements of the General Conditions.

B. Certification:

1. Pressure Treated Wood: Certification for water-borne preservative that moisture content was reduced to 19% maximum, after treatment.
2. Pressure Treated Wood: Submit certification by treating plant stating the chemicals and process used, net amount of salts retained, and conformance with applicable standards.

1.04 JOB CONDITIONS

A. Environmental Requirements: Maintain uniform moisture content of lumber at 19 percent or less prior to close-in.

B. Sequencing: Coordinate details with other work supporting, adjoining, or fastening to rough carpentry work.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Protection, General: Protect wood from moisture while being stored and while work is in progress.

B. Protection:

1. After delivery, store all materials in such a manner as to ensure proper ventilation and drainage and to protect against damage and the weather.

2. Keep all material clearly identified with all grade marks legible; keep all damaged material clearly identified as damaged, and separately store to prevent its inadvertent use. Do not allow installation of damaged or otherwise non-complying material.
3. Use all means necessary to protect the installed work and materials of all other trades.

C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Wood:

1. Lumber (Blocking, Backing, Stripping, Furring, and Nailers): WCLIB Construction.
2. Lumber (Wood Framing): Meet requirements of following minimum grades, and as noted on Structural Drawings.

Item	Species	Grade	Reference
Studs	D.F.	No. 1	WCLIB 121
Plates	D.F.	No. 1	WCLIB 123b
Beams	D.F.	Select Structural	WCLIB 130b
Joists	D.F.	No. 1	WCLIB 123b
Posts	D.F.	Select Structural	WCLIB 131b

3. 3x and larger lumber shall be free of heart center.
4. 2x6 T & G Douglas Fir No. 1.

B. Pressure-Treated Lumber:

1. Douglas Fir, pressure treated.
   a. Required for cast-in-nailers, sills or anywhere wood is in contact with concrete, masonry, or grout.
   b. Required for all rooftop blocking.

C. Preservative Treatment

1. Furnish pressure treated Douglas Fir in accordance with AWPA, Standard U1. Each piece is required to bear AWPA stamp.
2. Field treat cut edges and holes frilled in factory treated lumber with an approved AWPA Standard U1 preservative product.
3. For fastener requirements, see Paragraph 2.01-F-8.

D. Rough Hardware Fastenings and Connections: All types including bolts, lag screws, nails, spikes, screws, washers, framing devices and other rough hardware, or kinds that may be purchased and

that require no further fabrication, shall be furnished, and installed for all finish and rough carpentry. All exterior hardware shall be hot-dipped galvanized per ASTM A123-24 Standards.

1. Nails: ASTM F1667 Common wire nails or spikes; box nails not permitted.
2. Wood Screws: Wood Screws: ANSI Standard B18.6.1; use galvanized type for exterior work.
3. Lag Screws: Conform to ASTM A307-21 and ANSI Standard B18.2.1. Dimensions and installation shall conform to requirements described in the National Design Specification (NDS), current edition.
4. Bolts: ASTM A307-21, Grade A, hexagonal heads, unless noted otherwise.
5. Washers: Washers for bearing against wood shall be provided under all bolt heads and nuts. Washers shall be as indicated on Drawings.
6. Powder Driven Fasteners: Tempered steel pins with special corrosive-resistant plating or coating. Pins shall have guide washers to accurately control penetration, minimum 1-1/8 inch. Fastening shall be accomplished by low-velocity pistol-driven powder activated tool. Pins and tool shall be as manufactured by Hilti Fastening Systems; Impex Tool Corporation; or approved equal. ICBO approved.
7. Fabricated Sheet Metal Timber Framing Connectors: CBC approved. Fabricate from hot-dipped galvanized steel. Connectors shall be at least 18 gauge minimum material (1/8" plate materials where welded, unless otherwise noted), punched for nailing. Nails and Nailing shall conform to the manufacturer's instructions with a nail provided for each punched hole. Types as noted on Drawings, manufactured by Simpson Co. or approved substitute. All framing connectors shall be stamped with manufacturer's logo, and model designation.
8. All fasteners into preservative-treated and fire-retardant-treated wood shall be of hot dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper per CBC 2304.10.5. The coating weights for zinc-coated fasteners shall be in accordance with ASTM A153. Fasteners other than nails, timber rivets, wood screws and lag screws shall be permitted to be of zinc coated steel with coating weights in accordance with ASTM B695, Class 55 minimum.

E. Exterior Trim and Fascia: RIS Grade Stamped, Redwood, B Heart, Vertical Grain, Kiln Dried, surfaced sizes as indicated on the drawings.

2.02 FABRICATION

A. Lumber:

1. Air- or kiln-dry to maximum 19 percent moisture content, prior to installation. Lumber must be 19 percent moisture content prior to close-in and finish.
2. Furnish S4S unless otherwise noted.
3. Size to conform with rules of governing standard. Sizes shown are nominal unless otherwise noted.

2.03 SOURCE QUALITY CONTROL

A. Grade Mark each piece of lumber. Marking must be done by recognized agency. Lumber Manufacturer's Association Certificates may be accepted in lieu of such grade and trademarks.

1. Douglas Fir shall bear WCLIB grade stamp.

B. Each piece of preservative treated lumber shall bear AWPA stamp.

2.04 WOOD PRESERVATIVE TREATMENT

A. Preservative treatment: Comply with applicable requirements of AWPA standards C2 for lumber and C9 for plywood. After treatment, kiln dry lumber to a maximum moisture content of 19 percent, and plywood to 15 percent.

1. Pressure treat members connected with roofing, flashing and weatherproofing; including but not limited to cants, nailers, curbs, equipment supports and blocking.

2. Pressure treat members that are concealed and in contact with masonry or concrete, including, but not limited to, sills, nailers, blocking, furring and studs.

PART 3 – EXECUTION

3.01 SURFACE CONDITIONS

A. Inspection:

1. Prior to all work of this Section, carefully inspect the installed work of all other trades, and verify that all such work is complete to the point where this installation may properly proceed.
2. Verify that rough carpentry may be performed in strict accordance with the original design and all pertinent codes and regulations.

B. Selection of Lumber Pieces: Carefully select all members. Select individual pieces so that knot and obvious defects will not interfere with placing bolts or proper nailing or making proper connections. Cut out and discard all defects which will render a piece unable to serve its intended function.

C. Lumber may be rejected by the Architect, whether or not it has been installed, for excessive warp, twist, bow, crook, mildew, fungus, or mold, as well as for improper cutting and fitting. No load carrying member shall be exposed to earthen materials.

D. Shimming: Do not shim any framing component.

3.02 FASTENING

A. Nailing: Except as otherwise indicated on Drawings or specified, all nailing shall be as scheduled on Drawings:

1. Nails or Spikes shall be common wire unless noted otherwise. Penetration of nails or spikes shall be one-half the length of the nail or spike into the piece receiving the point. However, to connect pieces 2 inches in thickness, 16d nails shall be used unless noted otherwise.
   a. Bore holes for nails wherever necessary to prevent splitting.
   b. Use finish or casing nails for finish work.

c. Use of nailing guns is as limited by CBC and must be approved by Architect and DSA. Submittal of guns and nails is required.

B. Bolts: Bolts shall be of sizes indicated. Drive fit with washers under nuts. Tighten all bolts and screws before closing in.

C. Framing Devices: As specified under Products, sizes as indicated. Use half-length nails where required.

D. Lag Screws: Pre-Bore lead holes and install per NDS, current edition.

3.03 FRAMING AND ROUGH CARPENTRY

A. Sills: Shall be in long lengths of sizes shown, fastened with anchor bolts at exterior walls and with powder driven fasteners at interior walls as indicated, a minimum of two (2) fasteners per piece and a bolt within 9" but not nearer than 6" from end of piece. Place malleable iron or steel plate washers (but not cut washers) under nuts bearing on wood. Set sills level and true and bed exterior wall sills and interior bearing wall sills on 1/2 inch dry-pack or non-shrink grout.

B. Joists and Beams: Shall be in long lengths and spliced over bearings unless shown otherwise. Install with crown side up. Beams or headers indicated to be built up of two or more joists shall be fabricated on the job using full length members. For two-piece members, stitch nail pieces together with 16d common nails spaced not over 12" o.c. and staggered. Clinch nails protruding through members.

1. Provide double joists and headers at all openings through floors and roofs unless otherwise shown on Drawings.
2. Provide typical headers at all openings through walls where one or more studs are required to be cut. For penetration through walls narrower than stud spacing, provide solid backing on all sides for fastening finish materials.

C. Wood Furring, Stripping and Grounds: Install as shown or required to provide nailing of materials or passage of pipes, conduits, etc., not otherwise accommodated.

D. Bridging: Space not over 8'-0" o.c. for spans over 16'-0". Spans over 8'-0" and under 16'-0" shall have bridging placed at midspan. Bridging shall be two 2 x 3's or solid blocking as indicated. Joists 8" or less in depth shall not require bridging unless specifically indicated.

E. Cuts or holes in preservative treated wood shall be treated in accordance with AWPB standard M4 in the field.

3.04 MISCELLANEOUS HARDWARE

A. Finish hardware is specified in Section 08 71 00. All other hardware indicated or required but not specified elsewhere shall be furnished and installed hereunder, including appropriate screws or other fastening devices.

3.05 MISCELLANEOUS CARPENTRY WORK

A. Miscellaneous Carpentry Work not included under other sections shall be furnished and installed hereunder as indicated. Carefully locate and securely anchor such items to structure.

B. Drypack: Drypack shall consist of 1 part high early strength Portland cement to not more than 3 parts of sand by volume. Add only a minimum amount of water to hold the mixture in shape while packing and to provide hydration. Solidly ram drypack into place to provide uniform bearing and cure with moist sacks or cloths for a period of at least three (3) days.

C. Shoring and Bracing: Shore or brace for temporary support of all work as required during the construction period except any shoring and bracing specified and included under other sections of these specifications.

E. Temporary Enclosures: Provide and maintain all barricades and enclosures required to protect the work in progress.

F. Protect all work in progress and all work installed, as well as the work of all other trades. Any work damaged as a result of the work under this section shall be corrected to its original condition or replaced if directed by the Architect and at no increase in cost to the Owner.

G. Protection Devices: Pedestrian walkways, barricades, lights, shoring and other protective structures and devices necessary for the protection of pedestrians shall conform in all respects to the requirements of CBC, Section 3306 Title 24 and to the requirements of the Department of Public Works.

3.06 FRAMING TOLERANCES

A. Maximum variation from true flatness: 1/4 inch in ten feet in any direction.

3.07 CLEAN-UP

A. Upon completion of the work of this Section, remove all surplus materials, rubbish, and debris from the premises.

END OF SECTION

SECTION 12 93 00

SITE FURNISHINGS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Accessible Picnic Tables
2. Accessible Planter
3. Wood Logs & Stumps
4. Log Play Stack
5. Water Play System
6. Worm Panel

1.02 RELATED REQUIREMENTS

A. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.

B. Section 32 16 00: Site Concrete.

C. Section 32 90 00: Planting.

D. Section 33 40 00: Site Drainage.

1.03 REFERENCES AND STANDARDS

A. California Building Code (CBC), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).

B. California Green Building Standards Code (CAL Green), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).

C. ASTM International (ASTM):
1. A36: Standard Specification for Carbon Structural Steel.
2. A787: Standard Specification for Electric-Resistance-Welded Metallic-Coated Carbon Steel Mechanical Tubing.
3. C150: Standard Specification for Portland Cement.

1.04 ADMINISTRATIVE REQUIREMENTS

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

2. Closeout Submittals shall be submitted in accordance with Section 01 77 00, Closeout Procedures.
3. Sustainable Design Submittals shall comply with the additional requirements of Section 01 81 13, Sustainable Design Requirements.

B. Coordination:
1. Contractor shall be responsible for the proper installation of all accessories embedded in concrete and for the provision of connections, holes, openings, and similar work necessary to the execution of the work of the trades.

1.05 ACTION SUBMITTALS

A. Shop Drawings:
1. Horizontal and vertical layout of site furnishings applicable to the respective furnishings item.

B. Product Data: Manufacturer's literature, specifications, installation instructions, maintenance instructions, and footing instructions as applicable for proposed products.

C. Samples:
1. Finishes and integral colors for selection.
2. Manufacturer's full range of colors for Architect's selection.

D. Sample of manufacturer's warranty.

1.06 CLOSEOUT SUBMITTALS

A. Warranty/Guarantee: Submit executed warranty and Subcontractor's guarantee.

1.07 QUALITY ASSURANCE

A. Installer Qualifications: Engage experienced subcontractors, with minimum 5 years of experience installing site furnishings similar in material, design, and extent to each type indicated for this Project and with a record of successful in-service performance.

B. Single-Source Responsibility: Use materials and products of one manufacturer whenever possible.

C. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.

D. Materials, components, assemblies, workmanship and installation are to be observed by the Owner's Project Inspector. Work not so inspected is subject to uncovering and replacement.

1.08 DELIVERY, STORAGE AND HANDLING

A. Site furnishings shall be delivered in good condition in original unopened packages with labels intact and unloaded at job site in such a manner that no damage occurs to the product during hauling, handling or unloading at the job site.

B. Store materials in protected, dry conditions off of ground and in areas so as to not interfere with the progress of the Work.

C. Transport, store and handle in strict accordance with the manufacturer's written instructions and recommendations.

1.09 FIELD CONDITIONS

A. Make and be responsible for field dimensions necessary for proper fitting and completion of work. Report discrepancies to Architect before proceeding.

1.10 WARRANTY

A. Manufacturer: In addition to the Contractor's and Subcontractor's Guarantee, furnish Owner with manufacturer's fully executed written warranties against defects in materials and workmanship as available.

PART 2 - PRODUCTS

2.01 VARIOUS SITE EQUIPMENT

A. Accessible Picnic Table:
   1. As shown on Plans and as specified herein.
B. Accessible Planter:
   1. As shown on Plans and as specified herein.
C. Wood Log:
   1. Logs shall be solid cedar, eucalyptus or redwood, debarked and skinned/turned to remove irregularities such as branch stubs.
   2. Install wood log level along entire run. Wood shall be free of warping, checking, or cracking prior to installation.
   3. See plans for additional information.
D. Wood Stump:
   1. Stumps shall be solid cedar, eucalyptus or redwood, debarked and skinned/turned to remove irregularities such as branch stubs
   2. Install stumps vertically with top cut level. Wood shall be free of warping, checking, or cracking prior to installation.
   3. See plans for additional information.
E. Log Play Stack:
   1. Manufacturer: Columbia Cascade, http://www.timberform.com (specified), or approved equal.
   2. Play Stack shall consist of wood logs, steel support posts, and attachment hardware.
   3. Logs shall be coastal Douglas fir (Pseudo-tsuga menziesii), free-of-heart-center (F.O.H.C.) selected by the equipment manufacturer for strength, durability, and appearance. To assure long, useful life, timbers containing the heart center of the log shall not be accepted
   4. All timbers shall be fine-grained, with at least 80 percent of the pieces possessing eight annular rings to the inch, the remainder having at least six rings to the inch. There shall be no loose knots, knotholes, shake, unsound wood, white specks or honeycomb allowed. Except as noted,

other characteristics and limiting provisions are in accordance with Paragraph 131-A "Standard Grading Rules for West Coast Lumber".

5. Steel support posts shall consist of 2 1/2" x 2 1/2" x. 0.188 thick square steel tubing with permanently welded 1/4" thick steel support bracket. Support posts and brackets shall be CASPAX-7™ finished in accordance with Section 3.0.
6. Additional hardware shall be provided in sufficient quantity to complete assembly of the TimberForm play equipment. All hardware shall be hot dip galvanized or stainless steel in accordance with the manufacturer's standard.
7. Model#: 4500-404

F. Water Play System:
1. Manufacturer: Goric (specified), or approved equal.
2. Redmond Water Play System
3. Model # 9-34000-775
4. SAE/AISI 304 Stainless Steel

G. Worm Panel:
1. As shown on Plans and as specified herein.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Prior to installation of the work of this Section, carefully examine and verify that installed work of other trades is complete to the point where this installation may properly commence.

B. Verify that specified items may be installed in accordance with the approved design.

C. Do not proceed with installation until conditions for installation are satisfactory.

3.02 INSTALLATION

A. General:
1. Field verify locations of equipment prior to installation to ensure proper fit and accurate placements.

B. Locate equipment furnishing as indicated on the Drawings. If not shown, locate in accordance with shop drawings and as approved by Architect.

C. Install site furnishings level, plumb, true, and securely anchored and positioned at locations indicated on the Drawings.

D. Cover all exposed fasteners with integral cover plates or applied vandal-proof covers, so there are no rough or protruding edges which can cause injury.

3.03 CLEANING AND ADJUSTING

A. Upon completion of installation, remove manufacturer's temporary labels and marks of identification.

B. Thoroughly wash surfaces and remove foreign material.

C. Galvanized metal that is cut, damaged, or modified after fabrication shall be immediately painted with zinc-rich paint to prevent rusting.

D. Leave entire work in neat, orderly, clean and acceptable condition.

3.04 PROTECTION

A. Protect work and materials of this Section prior to and during installation and protect the installed work and materials of other trades.

B. Exposed finishes shall be free from scratches, dents, permanent discolorations and other defects in workmanship or material.

C. In the event of damage, make repairs or replace damaged items to the approval of the Architect at no additional cost to the Owner.

END OF SECTION

SECTION 31 00 00

EARTHWORK

PART 1 - GENERAL

1.01 SUMMARY

A. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.

2. Section 01 50 00, Construction Facilities and Temporary Controls.

3. Section 01 57 13, Erosion Control

4. Section 31 23 33, Trenching and Backfilling.

5. Section 32 12 00, Asphalt Concrete Paving.

6. Section 32 16 00, Site Concrete.

7. Section 32 80 00, Irrigation.

8. Section 32 90 00, Landscaping.

9. Section 33 40 00, Site Drainage.

1.02 SUBMITTALS

A. Refer to Section 01 33 00.

B. Manufacturer's Data: Submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, published warranty or guarantee, installation instructions, and maintenance instructions.

1.03 QUALITY ASSURANCE

A. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.

B. All materials, components, assemblies, workmanship and installation are to be observed by the Owner's Inspector of Record. Work not so inspected is subject to uncovering and replacement.

C. The representatives of the Owner’s testing lab will not act as supervisor of construction, nor will they direct construction operations. Neither the presence of the Owner’s testing lab representatives nor the testing by the Owner’s testing lab shall excuse the contractors or subcontractors for defects discovered

in their work during or following completion of the project. Correcting of inadequate compaction or moisture content is the sole responsibility of the contractor.

D. Tests (See Part 3 for Compaction Testing).

E. Contractor shall be solely responsible for all subgrades built. Failures resulting from inadequate compaction or moisture content are the responsibility of the contractor. Contractor shall be solely responsible for any and all repairs.

1.04 WARRANTY

A. Refer to General Conditions and Section 01 78 36.

1.05 REFERENCES AND STANDARDS

A. General: Site survey, included in the drawings, was prepared by Warren Consulting Engineers, dated 11/24/2025, and is the basis for data regarding current conditions. While the survey is deemed generally accurate, there exists discrepancies and variations due to elapsed time, weather, etc. Existing dirt grades may vary 0.2 ft. from that shown.

B. Site Visitation: All bidders interfacing with existing conditions shall visit the site prior to bid to verify general conditions of improvements. Discrepancies must be reported prior to the bid for clarification.

C. ANSI/ASTM D698-e1 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)).

D. ANSI/ASTM D1556-e1 - Test Method for Density of Soil in Place by the Sand-Cone Method.

E. ANSI/ASTM 698-12e2 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)).

F. ANSI/ASTM D 3017-05 Test Methods for Moisture Content of Soils and Soil-Aggregate Mixture by Nuclear Methods (Shallow Depth).

G. ANSI/ASTM D 4318-10e1 Test Method for Liquid Limit, Plastic Limit, and Plasticity Limit.

H. CALTRANS Standard Specifications Section 17.

I. CAL-OSHA, Title 8, Section 1590 (e).

J. Any work within the street, highway or right-of-way shall be performed in accordance with the requirement of the governmental agencies having jurisdiction, and shall not begin until all of those governing authorities have been notified.

1.06 DELIVERY, STORAGE AND HANDLING

A. Transport, store and handle in strict accord with the local jurisdiction.

B. Make delivery to job when notified by Contractor verifying that the job is ready to receive the work of this Section and that arrangements have been made to properly store, handle and protect such materials and work.

1.07 PROJECT CONDITIONS

A. Existing civil, mechanical and electrical improvements are shown on respective site plans to the extent known. Should the Contractor encounter any deviation between actual conditions and those shown, he is to immediately notify the Architect before continuing work.

B. Excavation dewatering may be necessary. Contractor shall provide any and all tools, equipment and labor necessary for excavation dewatering no matter what the source. Dewatering shall be continuous until all site utilities are installed and backfilled.

1.08 EXISTING SITE CONDITIONS

A. Contractor shall acquaint himself with all site conditions. If unknown active utilities are encountered during work, notify Architect promptly for instructions. Failure to notify will make Contractor liable for damage to these utilities arising from Contractor's operations subsequent to discovery of such unknown active utilities.

1.09 ON SITE UTILITY VERIFICATION AND REPAIR PROCEDURES

A. Ground-breaking requirements:

1. All underground work performed by a Contractor must be authorized by the District's Construction Manager or the Low Voltage Consultant prior to start of construction.
2. The Contractor is to obtain and keep the original School's construction utility site plans on site during all excavation operations. Contractor can contact the District's Construction Manager, Facilities Manager, or the Low Voltage Consultant to procure the drawings.

B. Underground Utility Locating:

1. The contractor shall hire an Underground Utility Locating Service to locate existing underground utility pathways in areas affected by the scope of work for excavation.
2. Contractor must use an underground utility locator service with a minimum of 3 years' experience. The equipment operator must have demonstrated experience.
3. The Underground Utility Locator Service must have the use of equipment with the ability to locate by means of inductive clamping, induction, inductive metal detection, conductive coupling, or TransOnde (Radio detection) to generate signals, passive locating (free scoping) for "hot" electric, and metal detector.
4. The Underground Utility Locator Service must be able to locate existing utilities at a depth of at least 72".
5. The Underground Utility Locator Service must be able to locate but are not limited to locating the following types of utility pathways:
   a) All conduit pathways containing 110 volt or greater 50-60Hz electrical wire.
   b) All conduit pathways containing an active cable TV system.
   c) All conduit pathways containing wire or conductor in which a signal can be attached and

generated without damaging or triggering the existing systems.

d) All empty conduit pathways or pipe in which a signal probe or sonde (miniature transmitter) can be inserted.

e) All conduit pathways containing non-conductive cables or wires in which a signal probe or sonde (miniature transmitter) can be inserted.

f) All plastic and other nonconductive water lines in which a TransOnde Radio detection) or other "transmitter" can be applied to create a low frequency pressure waive (signal) without damaging or triggering the existing systems.

g) All copper or steel waterlines and plastic or steel gas lines

6. All markings made by the Underground Utility Locator Service or other shall be clear and visible.
7. The contractor shall maintain all markings made by Underground Utility Locator Service or other throughout the entire length of the project.
8. The Underground Utility Locator Service shall provide the contractor with two sets of maps showing the location of utilities and average depth. They will be referenced to permanent buildings. Contractor will deliver one copy to the district at no additional charge.
9. Contractor is responsible to contact Underground Service Alert (U.S.A. 800/227-2600) and receive clearance prior to any excavation operations.
10. Contractor shall inform the District's Construction Manager no later than five (5) days prior to the date scheduled for the utility locator service to be on site.

1.10 PROTECTION

A. Adequate protection measures shall be provided to protect workmen and passers-by on and off the site. Adjacent property shall be fully protected throughout the operations. Blasting will not be permitted. Prevent damage to adjoining improvements and properties both above and below grade. Restore such improvements to original condition should damage occur. Replace trees and shrubs outside building area disturbed by operations.

B. In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for working conditions at the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and shall not be limited to normal working hours.

C. Any construction review of the Contractor's performance conducted by the Geotechnical Engineer is not intended to include review of the adequacy of the Contractor's safety measures, in, on, or near the construction site.

D. Provide shoring, sheeting, sheet piles and or bracing to prevent caving, erosion or gullying of sides of excavation.

E. Surface Drainage: Provide for surface drainage during period of construction in manner to avoid creating nuisance to adjacent areas. The contractor shall make a reasonable effort on a daily basis to keep all excavations and the site free from water during entire progress of work, regardless of cause, source, or nature of water.

F. Adjacent streets and sidewalks shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.

G. The site and adjacent influenced areas shall be watered as required to suppress dust nuisance. Dust control measures shall be in accordance with the local jurisdiction.

H. ENVIRONMENTAL PROTECTION

1. No ground-disturbing activities shall be allowed outside of the project construction boundary. Construction fencing shall be placed at the boundary of the project site to clearly mark the limits of ground-disturbing activities.
2. All project-related traffic shall be restricted to designated access roads, routes, and construction areas within the project boundary. No vehicular or pedestrian traffic shall be allowed outside the designated project boundary.

1.11 SEASONAL LIMITS

A. No fill material shall be placed, spread or rolled during unfavorable weather conditions. When work is interrupted by rains, fill operations shall not be resumed until field tests indicate that moisture content and density of fill are satisfactory.

B. Excessively wet fill material shall be bladed and aerated per section 3.08, B.

1.12 TESTING

A. General: Refer to Section 01 45 00 – Quality Requirements.

B. Geotechnical Engineer: Owner is retaining a Geotechnical Engineer to determine compliance of fill with Specifications, and to direct adjustments in fill operations. Costs of Geotechnical Engineer will be borne by Owner; except those costs incurred for re-tests or re-inspection will be paid by Owner and back charged to Contractor.

1. If Contractor elects to process or mine onsite materials for use as Suitable Fill, Aggregate Sub Base, Aggregate Base, Rock, Crushed Rock or sand the cost of all testing of this material shall be paid for by the Contractor.
2. Testing of import fill for compliance with Department of Toxic Substance Control (DTSC) shall be paid for by the Contractor.

1.13 ARCHEOLOGICAL AND CULTURAL RESOURCES

A. If archeological or cultural resources are discovered during the Work, the Contractor must cease all construction operations in the vicinity of the discovery until a qualified archeologist can assess the value of these resources and make recommendations to the State Historic Preservation Officer. Archeological and cultural resources include artifacts, large amounts of bone, shell, or flaked stone, and other evidence of human activity. If the State Historic Preservation Officer or the Owner directs that work be temporarily ceased at the location of an archeological or cultural find, the Contractor must temporarily suspend work at the location.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Landscape Backfill Material:

1. Imported Topsoil may be required to complete work. See Section 329000 for requirements. Proposed Topsoil material shall comply with DTSC guidelines to include Phase 1 environmental site assessment and related tests. Refer to the October 2001 DTSC Information Advisory for clean imported fill material.

B. Water: Furnish all required water for construction purposes, including compaction and dust control. Water shall be potable.

C. Aggregate Base: Provide Class 2 3/4" Aggregate Base conforming to standard gradation as specified in Cal Trans Standard Specifications, Section 26,-1.02A.

D. Decomposed Granite: Decomposed Granite shall be well graded mixture of fine to 1/8" particles in size with no clods. The material shall be free of vegetation, other soils, debris and rock. The material shall be reddish-tan to tan in color.

E. Decomposed Granite Solidifier: PolyPavement or equal.

PART 3 – EXECUTION

3.01 INSPECTION LAYOUT AND PREPARATION

A. Prior to installation of the work of this Section, carefully inspect and verify by field measurements that installed work of all other trades is complete to the point where this installation may properly commence

B. Layout all work, establish grades, locate existing underground utilities, set markers and stakes, setup and maintain barricades and protection facilities; all prior to beginning actual earthwork operations. Layout and staking shall be done by a licensed Land Surveyor or Professional Civil Engineer.

C. Verify that specified items may be installed in accordance with the approved design.

D. In event of discrepancy, immediately notify Owner and the Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

3.02 PERFORMANCE

A. GENERAL:

1. General: Do all grading, excavating and cutting necessary to conform finish grade and contours as shown. All cuts shall be made to true surface of subgrade.
2. Archaeological Artifacts: Should any artifacts of possible historic interest be encountered during earthwork operations, halt all work in area of discovery and immediately contact the Architect for notification of appropriate authorities.
3. Degree of Compaction: Percentage of maximum density, hereinafter specified as degree of compaction required, means density equivalent to that percentage of maximum dry density

determined by ASTM D1557 Compaction Test method, and such expressed percentage thereof will be minimum acceptable compaction for specified work.

4. Moisture Content: Moisture content shall be as noted below and as called for on the plans. Moisture content shall be maintained until subgrade is covered by surfacing materials.

3.03 DEMOLITION, DISPOSAL AND DISPOSITION OF UNDESIRABLE MAN-MADE FEATURES

A. All other obstructions, such as abandoned utility lines, septic tanks, concrete foundations, and the like shall be removed from site. Excavations resulting from these removal activities shall be cleaned of all loose materials, dish shaped, and widened as necessary to permit access for compaction equipment. Areas exposed by any required over-excavation should be scarified to a depth of 12", moisture-conditioned to 2% above optimum unless directed by the testing agency to utilize a different percentage based on field conditions of the maximum dry density.

3.04 TESTING AND OBSERVATION

A. All grading and earthwork operations shall be observed by the Geotechnical Engineer or his representative, serving as the representative of the Owner.

B. Field compaction tests shall be made by the Geotechnical Engineer or his representative. If moisture content and/or compaction are not satisfactory, Contractor will be required to change equipment or procedure or both, as required to obtain specified moisture or compaction. Notify Geotechnical Engineer at least 48 hours in advance of any filling operation.

C. Earthwork shall not be performed without the notification or approval of the Geotechnical Engineer or his representative. The Contractor shall notify the Geotechnical Engineer at least two (2) working days prior to commencement of any aspect of the site earthwork.

D. If the Contractor should fail to meet the compaction 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 the Geotechnical Engineer or Architect/Engineer.

E. After each rain event Geotechnical Engineer shall test fill material for optimum moisture. Do not place any fill material until desired moisture is achieved.

3.05 CLEARING AND GRUBBING

A. Prior to grading, remove all debris off-site. Remove trees and brush including the root systems. Holes resulting from tree and brush removal should be prepared and backfilled in accordance with paragraphs 3.07, 3.08, 3.09, and 3.10. This may require deepening and/or widening the holes to adequately remove disturbed soil and provide room for compaction equipment. Strip the surface of all organics. Stripping's meeting the requirements of Section 32 90 00 may be used in landscape areas only.

3.06 CUTTING

A. When excavation through roots is necessary, cut roots by hand.

B. Carefully excavate around existing utilities to avoid unnecessary damage. The contractor shall

anticipate and perform hand work near existing utilities as shown on the survey, without additional claims or cost.

3.08 SUBGRADE PREPARATION

A. Grade compact and finish all subgrades within a tolerance of 0.10' of grades as indicated on Drawings and so as not to pool water. Subgrade within building pads and concrete walks shall be within 0.05' of grades indicated.

B. After clearing, grubbing and cutting, subsurface shall be plowed or scarified to a depth of at least 12", until surface is free from ruts, hummocks or other uneven features and uniform and free from large clods. Moisture condition to 2% above optimum moisture content and recompact to at least 90% of the maximum dry density as determined by ASTM Test Method D1557, unless noted otherwise in the plans. If the existing soils are at a water content higher than specified, the contractor shall provide multiple daily aerations by ripping, blading, and/or disking to dry the soils to a moisture content where the specified degree of compaction can be achieved. After seven consecutive working days of daily aerations, and the moisture content of the soil remains higher than specified, the contractor shall notify the architect. If the existing soils have a moisture content lower than specified, the contractor shall scarify, rip, water and blade existing soil to achieve specified moisture content. The contractor shall make proper allowance in schedule and methods to complete this work.

C. Subgrade in areas to receive landscaping shall be compacted to 90%.

3.09 PLACING, SPREADING AND COMPACTING FILL MATERIAL IN BUILDING PAD AND PAVEMENT AREAS

A. Selected fill material shall be placed in layers which, when compacted, shall not exceed 6 inches in compacted thickness. Each layer shall be spread evenly and thoroughly mixed to ensure uniformity in moisture content. Compactive effort should be applied uniformly across the full width of the fill. Large rocks that cannot be properly incorporated into the engineered fill should be removed.

B. Selected fill material shall be moisture-conditioned to specified moisture content. Selected fill material shall be unfrozen. When moisture content of fill material is below that specified, add water until proper moisture content is achieved. When moisture content is above that specified, aerate by blading or other methods mentioned in 3.08 B until moisture content is satisfactory.

C. After each layer has been placed, mixed and spread evenly, it shall be thoroughly compacted to a minimum of 90% as determined by the ASTM D1557 Compaction Test. Compact each layer over its entire area until desired density has been obtained.

D. Recompaction of Fill in Trenches and Compaction of Fill Adjacent to Walls: Where trenches must be excavated, backfill with material excavated. Place in lifts that when compacted do not exceed 6”, moisture conditioned to (optimum)(2% above optimum) moisture content, and compact to a minimum of 95% relative compaction in building pad and paved areas, and to 90% relative compaction in landscape areas.

E. Jetting of fill materials will not be allowed.

3.10 FINAL SUBGRADE COMPACTION

A. Final subgrade compaction shall be in accordance with section 3.08 and section 3.09 of these specifications and the project drawings.

3.11 PLACING, SPREADING, AND COMPACTION OF LANDSCAPE BACKFILL MATERIALS

A. All landscaped areas shall receive topsoil. After subgrade under landscape area has been scarified and brought to 90% maximum dry density, top soil shall be placed evenly to depth of 9" at 85% of maximum dry density.

B. Project Inspector must verify that materials are uniformly spread to minimum depth specified.

3.12 DECOMPOSED GRANITE COMPACTION AND STABILIZATION

A. Decomposed granite paving, paths or track shall be placed uniformly to the required depth and treated with PolyPavement or approved equal. Apply PolyPavement using Application Method 1 or a mixed application method.

3.14 FINISH GRADING

A. At completion of project, site shall be finished graded, as indicated on Drawings. Finish grades shall be “flat graded” to grades shown on the drawing. Mounding of finish grades will not be allowed unless otherwise directed on the landscape drawings. Tolerances for finish grades in drainage swales shall be +-0.05’. Tie in new and existing finish grades. Leave all landscaped areas in finish condition for lawn seeding. Landscaped planters shall be graded uniformly from edge of planter to inlets. If sod is used for turf areas the finish grade on which it is placed shall be lowered to allow for sod thickness.

B. All landscape areas shall be left free of rock or foreign material as specified in Section 32 90 00.

C. All landscape areas shall be approved by Architect prior to any planting.

3.15 SURPLUS MATERIAL

A. Excavated material not required for grading or backfill shall be removed from site at contractor’s expense.

3.16 CLEANING

A. Refer to Section 01 74 00.

B. Remove from fill all vegetation, wood, form lumber, casual lumber, and shavings, in contact with ground; buried wood will not be permitted in any fill.

END OF SECTION

SECTION 31 13 16

TREE PROTECTION

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Tree protection: complete as shown and as specified.

B. Related Sections:

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 02 41 00 – SITE DEMOLITION.
3. Section 32 80 00 – IRRIGATION.
4. Section 32 90 00 – LANDSCAPING.

1.02 SUBMITTALS

A. Contractor shall submit Tree Protection Area plan to Architect outlining all trees and plants listed by number to be protected and their groupings. All trees and plants shall be grouped in their own Fenced Tree Protection Areas as shown in Drawings.

B. Contractor shall submit to Landscape Architect in writing a schedule including any and all activity inside Fenced Tree Protection Areas. This schedule to include but not limited to the dates fences are initially installed, altered and dates of fence replacement. Intent of these provisions is that the Tree Protection Zone (TPZ) are fenced for the entire duration with only exceptions of short intervals or specifically defined construction activity needs. Revise schedule as directed by Architect.

C. Provide a Mediation Plan to keep existing trees and planting irrigated during construction.

1.03 WARRANTY

A. Guarantee all workmanship and materials hereunder against defective workmanship and materials, including damage by leaks and settlement of irrigation trenches, for the duration specified in Division 01 of these Specifications. (The Contractor is not responsible for vandalism or theft after date of final acceptance.)

PART 2 – PRODUCTS

2.01 MATERIALS

A. Use materials as specified; any deviation from the Specifications must first be approved by the

Owner's Representative in writing. All material containers or certificates shall be clearly marked by manufacturer as to contents for inspection.

B. Trunk Protection constructed of:

1. 20-foot long 2x6 wood boards or length needed to protect the trunk if tree trunk is shorter than 20'.
2. Metal wire. Gauge strong enough to tie the boards around the trunk of the tree.

C. Tree Protection Zone Fencing:

1. 4-foot-tall snow fencing or 6-foot-tall metal chain link construction fencing per the discretion of the Landscape Architect or District Representative.

D. Bark Mulch: Untreated, shredded cedar.

PART 3 – EXECUTION

3.01 PREPARATION

A. Maintain pre-existing moisture levels.

B. Maintain areas inside the fenced tree protection area including lawn mowing, leaf removal, operation and repair of irrigation.

C. Protect root systems from flooding, erosion, excessive watering and drying resulting from dewatering or other operations:

D. Prohibitions - DO NOT:

1. Allow run off or spillage of damaging materials in vicinity of root systems,
2. Rinse tools or equipment under trees,
3. Store materials, stockpile soil, park or drive vehicles within drip lines or in areas with plants,
4. Cut, break skin or bark, bruise roots or branches,
5. Allow fires under and adjacent trees and plants,
6. Discharge exhaust under foliage,
7. Secure cable, chain, or rope to trees,
8. Change grade within drip line of trees without Landscape Architect's approval,
9. Lime shall not be used.

3.02 INSTALLATION

A. Tree Trunk Protection

1. Conform to requirements for trees and plants to be retained, per 3.01, above.
2. Install boards vertically around tree and bind together with wire to protect the bark 360 degrees around the entire tree prior to start of any demolition and construction. Boards

are not to dig into bark.

3. Major scaffold limbs may require plastic fencing or straw waddles to be wrapped around them to protect them.

B. Tree Dripline Protection

1. The Tree Protection Zone (TPZ) is a restricted area around the base of the tree with a radius of one foot (1’) for every inch of tree trunk diameter or ten feet, which is greater, enclosed by tree protection zone fencing.
2. Signage designating the protection zone and penalties for violations shall be secured in prominent location on each protection fence.

C. Requirements for Trees to be Protected

1. Duration: Tree protection shall be erected before demolition, grading, or any construction begins and remain in place until final inspection of the project.
2. Conform to requirements for trees and plants to be retained, per 3.01, above.
3. Architect shall give final review of Tree Protection before construction to begin. Revise schedule as directed by Architect.
4. Vehicle movement within the TPZ will only be allowed for construction equipment.

    a. Within dripline, apply 10-inch layer of mulch over geotextile fabric.

5. Perform trenching operations within the TPZ of the tree so that:

    a. Digging shall be by hand using narrow trenching shovel,
    b. No roots larger than 2" diameter are cut and utilities are routed around or below them,
    c. Roots smaller than 2" diameter are cut with sharp tools, saws, loppers- not torn, chopped or broken.

6. Where roots are exposed:

    a. Do not allow the roots to dry out,
    b. On the same day the excavation is made, provide temporary backfill to original grade at tree roots,
    c. Or cover roots with 4 layers of wet untreated burlap, made wet each day, including weekends.

7. Roots larger than 3" in diameter are not to be cut without review and approval of Arborist.

3.03 REPAIR/RESTORATION:

A. It shall be the responsibility of Contractor to repair or replace any damaged trees.

B. Repair trees damaged by operations:

1. within 24 hours of damage,
2. to satisfaction of Landscape Architect,

3. to ISA Pruning Standards.

C. Replace repaired trees where repair has not restored them to health or aesthetics:

1. within 6 months of request to replace,
2. to the satisfaction of Landscape Architect,
3. with replacement plants of a size and variety matching those that were removed

D. Replaced trees and plants shall be the responsibility of Contractor to maintain in good health and aesthetics for the duration of the project from installation.

1. Contractor shall submit to Landscape Architect comprehensive maintenance plan for replacement tree, including but not limited to provisions for irrigation system independent of existing system.

E. Where suitable replacement of trees and plants are not available:

1. Contractor shall provide affidavits to Landscape Architect that they are not available.
2. Contractor shall provide compensation to the State at the following rates:

a. $2000 for each caliper inch of any tree or plants removed under 12 inches.
b. $4000 for each caliper inch of any tree or plants removed 12 inches or more.
c. Caliper of trees and plants measured at 6 inches above grade.
d. Caliper defined here as thickness of diameter, measured in inches.

F. Soil Contamination:

1. Contractor shall remove soil that has been contaminated during the performance of the Work by oil, solvents, and other materials which could be harmful to trees and plants, and replace with good soil, at Contractor's expense.

END OF SECTION

SECTION 31 23 33

TRENCHING AND BACKFILLING

PART 1 - GENERAL

1.01 SUMMARY

A. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 01 50 00, Construction Facilities and Temporary Controls.
3. Section 01 57 13, Erosion Control
4. Section 31 13 16, Tree Protection.
5. Section 31 23 33, Trenching and Backfilling.
6. Section 32 12 00, Asphalt Concrete Paving.
7. Section 32 16 00, Site Concrete.
8. Section 32 80 00, Irrigation.
9. Section 32 90 00, Landscaping.
10. Section 33 40 00, Site Drainage.

1.02 QUALITY ASSURANCE

A. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.

B. All materials, components, assemblies, workmanship and installation are to be observed by the Owner's Inspector of Record. Work not so inspected is subject to uncovering and replacement.

C. Contractor / Installer shall have been in business for five (5) years providing/finishing similar size projects and complexity.

1.03 SUBMITTALS

A. Refer to Section 01 33 00.

B. Submit Manufacturers data and shop drawings.

1.04 WARRANTY

A. Submit fully executed warranty for work and materials in this section per 01 78 36.

1.05 REFERENCES AND STANDARDS

A. California Building Code current edition.

B. California Plumbing Code current edition.

1.06 DELIVERY, STORAGE AND HANDLING

A. Transport, store and handle in strict accord with the local jurisdiction.

B. Make delivery to job when notified by Contractor verifying that the job is ready to receive the work of this Section and that arrangements have been made to properly store, handle and protect such materials and work.

1.07 PROJECT CONDITIONS

A. Contractor shall acquaint himself with all existing site conditions. If unknown active utilities are encountered during work, notify Architect promptly for instructions. Failure to notify will make Contractor liable for damage to these utilities arising from Contractor's operations subsequent to discovery of such unknown active utilities.

B. Field verify that all components, backing, etc. by others are installed correctly to proceed with installation of products as herein specified.

C. Trench dewatering may be necessary. Contractor shall provide any and all tools, equipment and labor necessary for trench dewatering no matter what the source. Dewatering shall be continuous until all site utilities are installed and backfilled.

1.08 PROTECTION

A. Adequate protection measures shall be provided to protect workers and passers-by on and off the site. Adjacent property shall be fully protected throughout the operations. Blasting will not be permitted. Prevent damage to adjoining improvements and properties both above and below grade. Restore such improvements to original condition should damage occur. Replace trees and shrubs outside building area disturbed by operations. Repair all trenches in grass areas with new sod (seeding not permitted) and "stake-off" for protection.

B. Contractor shall be solely and completely responsible for working conditions at the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and shall not be limited to normal working hours.

C. Any construction review of the Contractor's performance conducted by the Architect or Owner is not intended to include review of the adequacy of the Contractor's safety measures, in, on or near the construction site.

D. Provide shoring, sheeting, sheet piles and or bracing to prevent caving, erosion or gullying of sides of excavation.

E. Surface Drainage: Provide for surface drainage during period of construction in manner to avoid creating nuisance to adjacent areas. Keep all excavations free from water during entire progress of work, regardless of cause, source or nature of water.

F. Adjacent streets and sidewalks shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.

G. The site and adjacent influenced areas shall be watered as required to suppress dust nuisance.

H. Trees: Carefully protect existing trees which are to remain. Refer to Section 31 13 16 – Tree Protection

1.09 TRENCH SAFETY PROVISIONS

A. General Contractor shall be solely responsible for safety design, construction and coordination with agencies having jurisdiction. If such plan varies from shoring system standards established by Construction Safety Orders, plan shall be prepared by registered civil or structural engineer.

B. Nothing herein shall be deemed to allow use of shoring, sloping or protective system less effective than that required by Construction Safety Orders of California State Division of Industrial Safety.

C. When trenching through paved surface, provide steel trench plates to cover open trenches daily until trenches are backfilled.

1.10 SEASONAL LIMITS

A. No backfill material shall be placed, spread or rolled during unfavorable weather conditions. When work is interrupted by heavy rains, full operations shall not be resumed until field tests indicate that moisture content and density of fill are satisfactory.

B. Material above optimum moisture shall be processed per section 310000, 3.08, B.

1.11 TESTING

A. General: Refer to Section 01 45 00 – Quality Requirements.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Backfill materials: Pipeline and conduit trench backfill as shown on the plans and as specified below.

1. ¾ inch crush rock.
2. Native Materials: Soil native to Project Site, free of wood, organics, and other deleterious substances. Rocks shall not be greater than 3-inches.
3. Sand: Fine granular material, free of organic matter, mica, loam or clay.
4. Lean Mix Concrete/Controlled Density Backfill: 2 sacks cement slurry.
5. Class 2 aggregate base, ¾” rock, per Caltrans section 26-1.02B

B. Water: Furnish all required water for construction purposes, including compaction and dust control. Water shall be potable.

C. Provide other bedding and backfill materials as described and specified in Section 31 00 00, Section 33 40 00 and Divisions 15 and 16.

PART 3 – EXECUTION

3.01 INSPECTION

A. Verification of Conditions:

1. Examine areas and conditions under which work is to be performed.
2. Identify conditions detrimental to proper or timely completion of work and coordinate with General Contractor to rectify.

3.02 COORDINATION

A. General Contractor shall coordinate work as herein specified, in accordance with drawings and as required to complete scope of work with all related trades.

3.03 INSTALLATION

A. Perform work in accordance with pipe manufacturer's recommendations, as herein specified and in accordance with drawings.

3.04 TRENCHING

A. Make all trenches open vertical construction with sufficient width to provide free working space at both sides of trench around installed item as required for caulking, joining, backfilling and compacting; not less than 12 inches wider than pipe or conduit diameter, unless otherwise noted.

B. Carefully excavate around existing utilities to avoid unnecessary damage. The contractor shall anticipate and perform hand work near existing utilities as shown on the survey, without additional claims or cost.

C. Trench straight and true to line and grade with bottom smooth and free of edges or rock points.

D. Where depths are not shown on the plans, trench to sufficient depth to give minimum fill above top of installed item measured from finish grade above the utility as follows:

1. Sewer pipe: depth to vary
2. Storm drain pipe: depth to vary
3. Water pipe - Fire Supply: 36 inches
4. Water pipe – Domestic Supply: 30 inches

E. Where trench through existing pavement saw cut existing pavement in straight lines. Grind existing asphalt on each side of trench 3" wide x ½ the depth of the section. Apply tact coat to vertical surfaces before installing new asphalt. Replace asphalt and concrete pavement sections to matched existing conditions. In concrete pavement provide expansion and control joints to match existing joint layout.

3.05 BACKFILL

A. Pipe Trench Backfill is divided into three zones:

1. Bedding: Layer of material directly under the pipe upon which the pipe is laid.
2. Pipe Zone: Backfill from the top of the bedding to 6 inches (compacted) over the top of the pipe.
3. Upper Zone: Backfill between top of Pipe Zone and to surface of subgrade.

B. Bedding: Type of material and degree of compaction for bedding backfill shall be as defined in the Details and Specifications.

C. Pipe Zone and Upper Zone Backfill:

1. Type of material and degree of compaction Pipe Zone and Upper Zone Backfill shall be as required by Drawings, Details, & Specifications.
2. Upper Zone Backfill shall not be placed until conformance of Bedding and Pipe Zone Backfill with specified compaction test requirements has been confirmed.
3. Backfill shall be brought up at substantially the same rate on both sides of the pipe and care shall be taken so that the pipe is not floated or displaced. Material shall not be dropped directly on pipe.

D. Backfill Compaction:

1. Backfill shall be placed in layers which, when compacted shall not exceed 6 inches in thickness. Each layer shall be spread evenly and thoroughly mixed to ensure uniformity. Do not backfill over, wet, frozen or soft subgrade surfaces. Employ a placement method that does not disturb or damage foundation walls, perimeter drainage, foundation damp-proofing, waterproofing or protective cover.
2. When moisture content of fill material is below that required to achieve specified density, add water until proper moisture content is achieved. When moisture content is above that required, aerate by blading or other methods until specified moisture content is met, see section 310000, 3.08, B.
3. After each layer has been placed, mixed and spread evenly, it shall be thoroughly compacted in accordance with section 310000, 3.09, D. Compact each layer over its entire area until desired density has been obtained.
4. The top 8 inches of subgrade compaction under pavement or building shall be per Earthwork section 31 00 00.
5. Compaction: All backfill operations shall be observed by the Inspector of Record and/or Geotechnical Engineer. Field density tests shall be made to check compaction of fill material. If densities are not satisfactory, Contractor will be required to change equipment or procedure or both, as required to obtain specified densities. Notify Inspector and Architect at least 24 hours in advance of any operation.

E. Backfill in Areas Previously Lime or Cement Treated

1. If trenching is necessary in areas that have been previously lime treated the contractor shall backfill the trench with class 2 aggregate base, with minimum section equal to the lime treated section and compacted to 95%.

3.06 TRENCH AND SITE RESTORATION

A. Finished surface of trenches shall be restored to a condition equal to, or better than the condition as existed prior to excavation work.

3.07 PROTECTION

A. Protect existing surfaces, structures, and utilities from damage. Protect work by others from damage. In the event of damage, immediately repair or replace to satisfaction of Owner.

B. Repair existing landscaped areas to as new condition. Replant trees, shrubs or groundcover with existing materials if not damaged or with new materials if required. Replace damaged lawn areas with sod, no seeding will be permitted.

C. Replace damaged pavement with new compatible matching materials. Concrete walks to be removed to nearest expansion joint and entire panel replaced. Asphalt to be cute neatly and replaced with new materials.

D. Any existing materials removed or damaged due to trenching to be returned to new condition.

3.08 SURPLUS MATERIAL

A. Remove excess excavated material, unused materials, damaged or unsuitable materials from site.

3.09 CLEANING

A. Refer to Section 01 74 00.

B. Contractor will keep the work areas in a clean and safe condition so his rubbish, waste, and debris do not interfere with the work of others throughout the project and at the completion of work.

C. After completion of work in this section, remove all equipment, materials, and debris. Leave entire area in a neat, clean, acceptable condition.

END OF SECTION

SECTION 32 01 90

LANDSCAPE MAINTENANCE

PART 1 – GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, facilities, transportation and services to complete all landscape maintenance and related work as shown on the Drawings and specified herein.

B. Scope of work: The general extent of landscape maintenance can include, but may not be limited to the following:

1. Tree, shrub, ground cover and turf areas.
2. Irrigation systems.
3. General site clean-up.

C. Related sections can include, but may not be limited to:

1. Section 32 80 00 - Irrigation.
2. Section 32 90 00 - Planting.

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. State of California Department of Transportation Standard Specifications, current edition.

1.03 QUALITY ASSURANCE

A. Control of work: Comply with Section 5 of the State of California Department of Transportation Standard Specifications.

B. Control of materials: Comply with Section 6 of the State of California Department of Transportation Standard Specifications.

C. The Maintenance Contractor shall be experienced in horticulture and landscape maintenance, practices and techniques, and shall provide sufficient number of workers with adequate equipment to perform the work during the Landscape Maintenance Period.

1.04 LANDSCAPE MAINTENANCE PERIOD

A. Landscape Maintenance Period shall not start until all elements of construction, planting and irrigation for the entire project are in accordance with Contract Documents and as determined by Landscape Architect, in writing.

B. Landscape Maintenance Period shall be **90** calendar days for landscape and sod turf areas, and **120** days for seeded turf and athletic turf areas.

C. All construction fencing shall be removed.

D. Continuously maintain the entire project area during the progress of the work, during the specified Landscape Maintenance Period or until Final Acceptance of the project by the District's Representative.

E. A prime requirement is that all turf and landscape areas shall be planted and that all turf areas shall show an even, healthy stand of "sod-like" turf which shall have been mown twice. If such criteria are met to the satisfaction of the District's Representative, a written notification shall be issued to establish the effective beginning date of landscape Maintenance Period. Additionally, all elements contained on the Pre-maintenance Punch-list shall have been completed to the satisfaction of the District's Representative. The Landscape Maintenance period shall, on the discretion of the District's Representative, be allowed to start and finish at different times in different areas as applicable.

F. Any day of improper maintenance, as determined by the District's Representative, shall not be credited as an acceptable Landscape Maintenance Period day. The Landscape Maintenance Period shall be extended on a day-for-day basis should this occur until proper maintenance, as determined by the District's Representative, is being performed.

G. Contractor shall secure the project site against trespass, vandalism or theft during the Landscape Maintenance Period subject to the discretion of the District's Representative.

1.05 GUARANTEE

A. All work executed under this section shall be guaranteed against any and all poor, inadequate or inferior materials and/or workmanship, as determined by the District's Representative, for the entire Landscape Maintenance Period and for a period of one year after Final Acceptance of project.

B. The contractor shall install all replacement material in conformance with the Contract Documents.

1.06 FINAL ACCEPTANCE

A. Upon completion of all project work, including Landscape Maintenance Period, the District's Representative will, upon written request from the contractor (2 working day minimum notice), make an observation to determine conformance with the Contract Documents.

B. If, at the final project observation, work is found at variance with the Contract Documents, or is otherwise unacceptable, the District's Representative shall issue a punch-list of items requiring attention to the contractor. The contractor shall repair, replace or otherwise correct all non-compliant work, continue Landscape Maintenance Period, and make another written request to the District's Representative to verify punch-list completion. If punch-list is found to be incomplete, or if site is still found to be unacceptable, the contractor shall be back-charged as necessary for all additional observations required to issue Final Acceptance. All replacement materials and installations shall be in accordance with the Contract Documents. Remove rejected work and materials immediately from project. Prior to Final Acceptance, contractor shall provide the District's Representative with all Record Drawings and written Guarantee Statements in accordance with the Contract Documents.

PART 2 – PRODUCTS

2.01 MATERIALS

A. All materials used shall either conform to Specifications in other sections or shall otherwise be acceptable to the District's Representative. The District's Representative shall be given a monthly record of all herbicides, insecticides and disease control chemicals used.

B. Maintenance fertilizer: shall be "Gro-Power High Nitrogen" as available through Gro-Power, Inc. (800) 473-1307, and shall contain the following chemical analysis (or approved equal):

1. 14% nitrogen.
2. 4% phosphoric acid.
3. 9% potash.

PART 3 – EXECUTION

3.01 MAINTENANCE

A. General: Proper maintenance, including watering, weeding, mowing, edging, fertilization, raking, repairing and protection shall be required until entire project is finally accepted, but in any event for a period of not less than the Specified Landscape Maintenance Period.

B. Watering: Water appropriately (based on plant type) to ensure vigorous and healthy growth until work is accepted. Water or irrigate in a manner to prevent runoff or erosion. When hand watering, use a "water wand" to break the water force.

C. Weeding: Entire project site shall be kept free of weeds at all times. Control new weed growth with pre-emergent herbicides. If weeds develop, use legally approved herbicides.

1. No herbicide shall be used without the District's Representative prior consent. Use only herbicides in accordance with manufacturer's recommendations. If selective herbicides are used, extreme caution shall be observed so as not to damage any other plants. Spraying shall be done only under windless conditions.
2. Disease and Pest Control: Disease and insect damage shall be controlled by the use of

fungicides and insecticides, subject to the prior consent of the District's Representative. Mole and gopher mitigation shall be accomplished using legal means other than poison baits.

D. Tree "rings" in turf areas: Remove turf from around each tree to create a four (4) foot diameter turf free area.

E. Pruning:

1. Trees: Prune trees to select and develop permanent scaffold branches; to eliminate narrow v-shaped branch forks that lack strength; to reduce potential toppling and wind damage by thinning out crowns; to maintain a natural appearance and to balance crown with roots. Prune only as directed by the District’s Representative.
2. Shrubs: The objectives of shrub pruning are the same as for trees. Shrubs shall not be clipped into balled or boxed forms unless such is required by the design.
3. All pruning cuts shall be made to lateral branches, buds or near flush with the trunk. "Stubbing" or heading cuts shall not be permitted.
4. Only skilled workers shall perform pruning work in accordance with standard horticultural pruning practices. Remove from the project all pruned branches and material. Remove and replace any plant material excessively pruned or malformed resulting from improper pruning practices at no additional cost to the District.

F. Staking: Stakes shall remain in place through the maintenance and guarantee periods and shall be periodically inspected and adjusted by the contractor to prevent rubbing that causes bark wounds, loosen for proper growth or other appropriate reasons.

G. Protection: The contractor shall maintain protection of all planting areas until Final Acceptance. Damaged areas shall be repaired or replaced at the contractor's expense. Install a temporary maintenance fence (4' blaze orange with steel driven stakes or acceptable equal) around all turf areas for the entire length of Landscape Maintenance Period.

H. Trash: Remove trash in all project areas plus adjacent pedestrian walkways and parking areas.

I. Replacement: Refer to the Guarantee portion of this Section.

J. Fertilizing: Immediately after completion of planting, fertilize all turf planting areas with specified maintenance fertilizer at rates recommended by the manufacturer for the specific planting type. Repeat application every thirty (30) calendar days until end of specified Landscape Maintenance Period.

3.02 TURF MAINTENANCE

A. Current cultural management practices may be modified in accordance with tissue test results or environmental conditions. Fertilizer composition, rate, and/or source may be adjusted based on current soil and tissue test results and existing environmental conditions.

B. The following list represents the minimum required data that must be recorded in a field

operations log:

1. Daily soil and ambient temperature measurements at a minimum of 2 times per day at peak temperature periods of the day.
2. Chemical application logs - All labels, application rates, equipment used to apply chemicals shall be kept in the maintenance log. Chemicals shall include all fertilizers, bio-stimulants, growth regulators, and pesticides.
3. All cultural maintenance activities such as mowing, aerification, topdressing, sample collection and seeding shall be recorded.
4. Irrigation applications - Any use of the irrigation system should be documented as to zones used, duration of application, and any problems with coverage or system components.
5. System repair logs for each system must be maintained. Record replaced or repaired items such as irrigation heads and valves, or any drainage components in the appropriate system repair log.

C. The District will not assume maintenance of the turf until after the dates specified and after the turf has been inspected and approved by the District's Representative. The Contractor shall be responsible for maintenance.

D. The Contractor shall be responsible for the performance and operation of the playing field system during the construction, maintenance periods and until final acceptance. The Contractor shall keep a technically qualified man on site and maintain adequate labor, equipment and supplies in reserve to immediately repair the system or components in the event of any deficiency or failure, during the interim maintenance period.

E. Contractor shall provide all operations necessary to maintain the field through the date of acceptance. The following list of items represents the minimum operations necessary to maintain the fields. Maintenance items should, at the minimum, include:

1. Mowing: Turf will be cut with a dedicated mower of a triplex or five-gang reel type (for sod areas), and a dedicated driven rotary mower. Cutting height will be determined by environmental conditions, condition of sod, and time of year or activities. Turf height will be maintained using only sharp, clean reel-type equipment capable of cutting heights of 1.00 to 2.25 inches. The initial cutting or subsequent cuttings will remove not more than *1/3* of the grass leaf. Turf will be maintained to a neat appearance.
2. Aerification: The turf aerification during the maintenance period after full turf establishment shall be on an as needed basis to reduce compaction. The turf will be aerified to a depth not greater than 4" using self-propelled or PTO driven core aerification equipment with *3/8* to 1/2-inch diameter hollow tines on a 4-inch grid pattern.
3. Fertilization: Refer to soils report for recommended fertilizer and application rates.

4. Weed and Pest Control: The Contractor is to maintain the turf free from disease and infestation. Required treatments will be made according to the needs of the field as determined by the Owner's Representative. Comply with applicable requirements of Federal, State, and Local laws, regulations and codes having jurisdiction over chemical treatments. The contractor is to apply suitable preventative or post infection fungicides to protect the quality of the turf. Special attention shall be required during the seedling establishment period for damping off diseases.

3.03 TURF ACCEPTANCE

A. The Owner's Representative will inspect the turf at the end of each day. Unacceptable turf will be removed and replaced the following workday. Daily approval does not guarantee final acceptance. Final acceptance will follow Owner's Representative's final approval of the punch list and the following criteria:

1. Turf has rooted into the root zone mix to a depth of six inches (6") and has formed a mature sod mat.
2. The playing field surface is in a safe and playable condition.
3. Turf is free of dead or bare spots in excess of 3 square inches.
4. Soil and plant tissue fertility test results indicate all constituents are within target values.
5. Maintenance log is complete, and all equipment manuals and documentation delivered to the owner.

3.04 IRRIGATION SYSTEM

A. System Observation: The contractor shall visually check all systems for proper operation on a weekly basis and make all necessary repairs. All equipment shall be adjusted as necessary for proper coverage and function.

B. Controllers: Program automatic controllers for appropriate seasonal water requirements.

C. Booster Pump: Upon successful completion of testing by the booster pump technician, request that a checklist/certification be completed and signed by the technician. Deliver copies of the certification to both the Owner’s Representative and the Landscape Architect prior to the commencement of the landscape maintenance period.

D. Central Control System: Upon successful completion of testing by the Owner’s technician, request that a checklist/certification be completed and signed by the technician. Deliver copies of the certification to both the Owner’s Representative and the Landscape Architect prior to the commencement of the landscape maintenance period.

3.05 FIELD QUALITY CONTROL

A. Final Review: At or near the end of specified Landscape Maintenance Period, the contractor shall make a written request for a final review, and the work shall be reviewed for conformance with the Construction Documents. If work is not accepted at time of review, a punch-list of items requiring attention will be issued to the contractor for correction. The Landscape Maintenance

Period shall be extended at contractors' sole cost as necessary. Upon completion of the punch list the contractor shall again make written request for review. If, upon re-visiting the site, it is found that the punch-list has not been completed, the review shall end

B. All re-inspections required due to contractor not being prepared or nonconformance with the Construction Documents shall be back charged to the contractor.

C. Final Acceptance: When work is found to be in conformance with the Contract Documents, subject to the discretion of the Owners Representative, a statement of Final Acceptance shall be issued to the contractor.

END OF SECTION

SECTION 32 12 00

ASPHALT CONCRETE PAVING

PART 1 - GENERAL

1.01 SUMMARY

A. SECTION INCLUDES:

1. Asphalt paving mix designs.
2. Aggregate Base Course.
3. Asphalt Overlay.
4. Seal Coat and Striping.

B. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 01 50 00, Construction Facilities and Temporary Controls.
3. Section 310000, Earthwork.

1.03 QUALITY ASSURANCE

A. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.

B. All materials, components, assemblies, workmanship and installation are to be observed by the Owner's Inspector of Record. Work not so inspected is subject to uncovering and replacement.

C. The representatives of the Owner’s testing lab will not act as supervisor of construction, nor will they direct construction operations. Neither the presence of the Owner’s testing lab representatives nor the testing by the Owner’s testing lab shall excuse the contractors or subcontractors for defects discovered in their work during or following completion of the project. Correcting inadequate compaction is the sole responsibility of the contractor.

D. Contractor shall provide verification that asphalt mix temperature meets the requirements of this specification at time of application.

E. Contractor shall be solely responsible for all subgrades built. Any repairs resulting from inadequate compaction are the responsibility of the contractor.

F. Sieve analysis from testing laboratories identifying rock/sand percentages within the asphalt mix shall have a testing date within 90 days of contract signing.

G. Sieve analysis from a testing laboratory identifying rock/sand percentages within the class 2 aggregate base rock shall have a testing date within 90 days of contract signing.

1.04 SUBMITTALS

A. Refer to Section 01 33 00.

B. Manufacturer's Data: Submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, published warranty or guarantee, installation instructions, and maintenance instructions.

1.05 WARRANTY

A. Refer to General Conditions and Section 01 78 36.

1.06 REFERENCES AND STANDARDS

A. ANSI/ASTM D698-00 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb (2.49 Kg) Rammer and 12 inch (304.8 mm) Drop.

B. ANSI/ASTM D1556-00 - Test Method for Density of Soil in Place by the Sand-Cone Method.

C. ANSI/ASTM D1557-02 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb. (4.54 Kg) Rammer and 18 inch (457 mm) Drop.

D. ANSI/ASTM D 3017-05 Test Methods for Moisture Content of Soils and Soil-Aggregate Mixture by Nuclear Methods (Shallow Depth).

E. ANSI/ASTM D 4318-05 Test Method for Liquid Limit, Plastic Limit, and Plasticity Limit.

F. CALTRANS Standard Specifications.

G. CAL-OSHA, Title 8, Section 1590 (e).

H. Any work within the street, highway or right-of-way shall be performed in accordance with the requirement of the governmental agencies having jurisdiction, and shall not begin until all of those governing authorities have been notified.

1.07 DELIVERY, STORAGE AND HANDLING

A. Transport, store and handle in strict accord with the local jurisdiction.

B. Make delivery to job when notified by Contractor verifying that the job is ready to receive the work of this Section and that arrangements have been made to properly store, handle and protect such materials and work.

1.08 PROJECT CONDITIONS

A. Environmental Requirements:

1. Base Course: Do not lay base course on muddy subgrade, during wet weather, or when atmospheric temperature is below 40 degrees F.
2. Asphalt Surfacing: Do not apply asphaltic surfacing on wet base, during wet weather, or when atmospheric temperature is below 50 degrees F.

B. Contractor shall acquaint himself with all site conditions. If unknown active utilities are encountered during work, notify Architect promptly for instructions. Failure to notify will make Contractor liable for damage to these utilities arising from Contractor's operations subsequent to discovery of such unknown active utilities.

C. Adequate protection measures shall be provided to protect workmen and passers-by on and off the site. Adjacent property shall be fully protected throughout the operations. Blasting will not be permitted. Prevent damage to adjoining improvements and properties both above and below grade. Restore such improvements to original condition should damage occur. Replace trees and shrubs outside building area disturbed by operations.

D. In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for working conditions at the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and shall not be limited to normal working hours.

E. Any construction review of the Contractor's performance conducted by the owner’s representative is not intended to include review of the adequacy of the Contractor's safety measures, in, on, or near the construction site.

F. Surface Drainage: Provide for surface drainage during period of construction in manner to avoid creating nuisance to adjacent areas. The contractor shall make a reasonable effort on a daily basis to keep all excavations and the site free from water during entire progress of work, regardless of cause, source, or nature of water.

G. Adjacent streets and sidewalks shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.

H. The site and adjacent influenced areas shall be watered as required to suppress dust nuisance. Dust control measures shall be in accordance with the local jurisdiction.

I. No fill material shall be placed, spread or rolled during unfavorable weather conditions. When work is interrupted by rains, fill operations shall not be resumed until field tests indicate that moisture content and density of fill are satisfactory.

1.09 TESTING

A. General: Refer to Section 01 40 00 – Quality Requirements.

B. Geotechnical Engineer: Owner is retaining a Geotechnical Engineer to determine compliance of fill with Specifications, and to direct adjustments in fill operations. Costs of Geotechnical Engineer will be borne by Owner; except those costs incurred for re-tests or re-inspection will be paid by Owner and backcharged to Contractor.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Sterilant: Soil sterilizer shall be Esplanade 200 SC or approved equal.

1. Soil sterilizer shall be applied in strict accordance with manufacturer's instructions.

B. Base Course Aggregate: State Specifications, Section 26, Class 2 aggregate base (3/4" max.).

C. Asphalt Binder: Steam-refined paving asphalt conforming to State Specifications, Section 92, viscosity grade PG 64-10. Asphalt binder additives for HMA per Caltrans approved list of manufacturer's.

D. Liquid Asphalt Tack Coat: Per CALTRANS section 94.

E. Surface Course Aggregate: Mineral aggregates for Type "B" asphalt concrete, conforming to State Specifications 39-2.02, Type B, ½" maximum, medium grading. 3/8" maximum grading at Playcourt.

F. Seal Coat: shall be a pre-mixed asphalt emulsion blended with select fillers and fibers such as:

1. "Park-Top No. 302", Western Colloid Products.
2. "OverKote", Reed and Gram.
3. "Drivewalk", Conoco Oil.

G. Wood Headers and Stakes: Pressure treated.

H. Pavement Marking: Colors as directed by Drawings and MUTCD. Colors of painted traffic stripes and pavement markings must comply with ASTM D 6628.

1. Waterborne traffic line - colors white, yellow and red, State specification PTWB-01R3.
2. Waterborne traffic line for the international symbol of accessibility and other curb markings – blue, red and green, Federal specification TT-P-1952F.

I. Precast Concrete Bumpers: 3000 psi at 28 day minimum strength; 48" length unless otherwise indicated; provide with steel dowel anchors and concrete epoxy.

J. Pavement Epoxy; K-Lite; Ktepx-590; Ennis Epoxy HPS2 or an approved equal.

K. Crack Filler;

1. Cracks up to ½": QPR model CAR08, 10oz asphalt crack filler; Star STA-FLEX Trowel Grade crack filler or approved equal.
2. Cracks ¼" – 1": "Docal 1100 Viscolastic, distributed by Conoco, Inc., Elk Grove, CA, (916) 685-9253, or approved equal.
3. Cracks greater than 1": Hot Mix, Topeka.

L. Reclaimed Asphalt Paugment (RAP). HMA Type A or Type B may be produced using RAP providing it

does not exceed 15% of the aggregate blend.

2.02 MIXES

A. General: Plant mixed conforming to State Specifications, Section 39, Type B, ½" maximum, medium grading. 3/8" maximum grading shall be used at hardcourt.

B. Temperature of Hot Mix Asphalt: Not less than 275 degrees F nor more than 325 degrees F when added to aggregate.

C. Temperature of Hot Mix Aggregate: Not less than 250 degrees F nor more than 325 degrees F when asphalt is added.

D. Temperature of Hot Mix Asphalt Concrete: Asphalt shall be not less than 285 degrees at time of application, nor more than 350 degrees. Asphalt not meeting the required temperature shall not be used.

E. Temperature of Warm Mix Asphalt: Mixing and placement; Per the approved manufactures heat range recommendations for mixing and placement.

PART 3 - EXECUTION

3.01 EXAMINATION OF CONDITIONS

A. Conditions of Work in Place: Subsurfaces which are to receive materials specified under this Section shall be carefully examined before beginning work hereunder, and any defects therein shall be reported, in writing, to the Architect. Work shall not be started until such defects have been corrected. Starting of work shall imply acceptance of conditions as they exist.

3.02 PREPARATION

A. Sub-Grade: Clean, shape and compact to hard surface free from elevations or depressions exceeding 0.05' in 10' from true plan. Compact per Section 31 00 00. Compaction and moisture content shall be verified immediately prior to placement of aggregate base. Proof roll subbase in presence of geotechnical engineer prior to placement of aggregate base.

B. Cleaning: Existing surfaces and new surface shall be clean of all dirt, sand, oil or grease. All cracks shall be cleaned and free of all debris and vegetation. Hose down entire area with a strong jet of water to remove all debris.

3.03 INSTALLATION

A. Headers:

1. General: Install as edging to asphalt paving, except where adjoining existing pavement, concrete curbs, walks or building.
2. Existing Headers: Remove existing headers where new paving will join existing. Saw cut existing asphalt to provide clean edge.

3. Lines and Levels: Install true to line and grade. Cut off tops of stakes 2-inches below top of header so they will not be visible on completion of job.

B. Asphalt Paving:

1. Base Course: Install in accord with State Specifications, Section 26. Compact to relative compaction of not less than 95%, ASTM D1557. The material shall be deposited on the subgrade in such a manner as to provide a uniform section of material within five percent tolerance of the predetermined required depth. Deposition will be by spreader box or bottom dump truck to prevent segregation of the material. The material so deposited on the subgrade shall have sufficient moisture which, in the opinion of the Architect is adequate to prevent excessive segregation. It shall then be immediately spread to its planned grade and cross section. Undue segregation of material, excessive drifting or spotting of material will not be permitted. If in the opinion of the site geotechnical engineer, the material is unsuitably segregated, it shall be removed or completely reworked to provide the desired uniformity of the material.
   a. Moisture content and compaction of base material shall be tested immediately prior to placement of asphalt paving.
2. Sterilant: Apply specified material at manufacturer's recommended rate. Applicator of sterilant material shall be responsible for determining location of all planter areas. Apply specified material over entire base course area just prior to application of asphalt. Follow manufacturer's printed directions.
3. Liquid Asphalt Tack Coat: Apply as "tack coat" to all vertical surfaces of existing paving, curbs, walks, and construction joints in surfacing against which paving is to be placed.
4. Asphalt Concrete Surface Course:
   a. Comply with State Specifications, 39-6 except as modified below.
      1) Final gradation shall be smooth, uniform and free of ruts, humps, depressions or irregularities, with a minimum density of 91% of the theoretical maximum specific gravity determined by California Test Method #309. Maximum variation 1/8 inch in 10' when measured with steel straightedge in any one direction. Test paved areas for proper drainage by applying water to cover area. Correct portions that do not drain properly by patching with plant mix. In no case shall accessible parking spaces or loading and unloading areas exceed 2% slope in any direction.
      2) Asphalt material shall be delivered to the project site in a covered condition to maintain acceptable temperature. Onsite inspector shall verify temperature of asphalt upon truck arrival to the site.
5. Placement and adjustment of Frames, Covers, Boxes and Grates: The Contractor shall set and adjust to finish grade all proposed and existing frames, covers, boxes, and grates of all manholes, drop inlets, drain boxes, valves, cleanouts, electrical boxes and other appurtenant structures prior to placement of asphaltic concrete.
6. Water Testing: All paved areas shall be water tested, to check drainage, in the presence of the project inspector prior to placement of seal coat. The surface of asphalt paving shall not vary more than 1/8 inch above or below the grade established on the plans. If variations in grade are present, they will be corrected by overlaying paving and/or pavement removal and replacement as directed by the Architect.
7. Patching: Cut existing paving square and plumb at all edges to be joined by new paving. In trenches; grind existing asphalt on each side of trench 3” wide x ½ the depth of the section. Apply tact coat to vertical surfaces before installing new work. Warp carefully to flush surface, with seal over joints, and feather edge. Sawcut, remove and patch existing paving where cutting is

necessary for installation of piping or conduits under Divisions 2, 15 and 16.

C. Seal Coat:

1. Seal coat shall be applied no sooner than 30 days from time of asphalt placement, no exceptions.
2. Surface Preparation: surface and cracks shall be clean of all dirt, sand, oil or grease. All cracks shall be filled to a level condition after curing. Make multiple fill applications until a level condition is achieved. Failure to do so will be the reason for rejection. Hose down entire area with a strong jet of water to remove all debris. Remove soft, loose, or otherwise damaged areas of asphalt concrete to full depth of damage and replace with compacted hot mix asphalt concrete as specified herein. Minor holes and imperfections may be patched using hot mix asphalt or mastic using sand/SS-1-H. Use wire brush for removal of oil and grease; prime with shellac or synthetic resin as recommended by manufacturer of pavement sealer material.
3. Seal Coat Seal Application: Thoroughly mix materials and apply in the presence of the onsite inspector. Failure to do so will be cause for rejection. Apply in accordance with manufacturer's written instructions.
   a. The minimum application rate for each applied coat shall be 30gals per 1000 sq. ft. Two coats of sealcoat will be required.
   b. Clean-Up and Precautions: As recommended by pavement sealer material manufacturer.

D. Asphalt Concrete Overlay Paving:

1. Comply with State Specifications, 39-6 except as modified below.
2. Grind or remove existing asphalt concrete paving at limits of overlay paving to provide a minimum 1 1/2" overlay thickness. Limits of grinding or removal shall be field verified to insure that finished paving surface will have a one percent minimum slope.
3. Thoroughly clean surface to remove vegetation, dirt, sand, gravel and water from surface and from cracks. Vegetation shall be treated 7 days prior to removal with an herbicide.
4. Cracks greater than 1 inch shall be filled with hot mix asphalt and rolled and compacted. Cracks less than one inch shall be filled with crack filler. Potholes shall be filled with hot-mix rolled and compacted. Contractor shall have Engineer approve crack and pothole repair prior to overlay. Provide leveling courses of hot mix asphalt as required to achieve finish grades shown on the drawings.
   a. Cracks less than one inch in width shall be level after curing. Contractor shall make multiple filling applications as necessary to achieve a level condition.
5. Place overlay when ambient air temperature is 40 degrees F. and rising, and when pavement is dry.
6. An asphalt tack coat shall be applied to existing surface area at a rate of 0.20 gallons per square yard. Application width shall be width of fabric plus 2 to 6 inches.
7. Place, spread and compact asphalt overlay to provide a minimum density of 95% of maximum theoretical unit weight as determined by California Test Method #304. Maximum variation 1/8" in 10' when measured with steel straight edge in any one direction. Test paved areas for proper drainage by applying water to cover area. Correct portions that do not drain properly by patching with plant mix. Minimum compacted overlay thickness 1 1/2 inches.

E. Pavement Marking: pavement markings shall be done only after the seal coat has thoroughly dried. Existing surfaces to be striped with traffic paint shall be cleaned of dust, dirt, grime, oil, rust or other contaminants which will impair the quality of work or interfere with proper bond of paint coats.

Surfaces shall be thoroughly cleaned by whatever means necessary that will satisfactorily accomplish the purpose without damage to asphalt concrete. Provide measured layouts, temporary markings, templates, and other means necessary to provide required marking. Prepare and apply paint in accordance with manufacturer's instructions; paint shall be applied by spray and shall achieve complete coverage free from voids and thin spots. Where indicated on the Drawings, paint parking stall strips, lettering, arrows, accessible symbols, playfield markings, etc. on asphalt concrete paving. Paint strips shall be 4 inches wide (except otherwise indicated) and applied with two (2) coats of herein specified Traffic Line Paint; white (except as otherwise specified or indicated).

1. Paints shall be delivered to the site in unopened containers.
   a. Paint shall not be diluted, or watered down.
   b. Paint shall be applied in 10-12 wet mil thickness (4-6 mil dried). Each coat thickness shall be verified by the project inspector.
2. International Accessible Symbol: Symbol shall be white figures on a blue background. Blue shall be equal to PMS 293C. Lines and symbols shall be accurately formed and true to line and form; lines shall be straight and uniform in width. Painted edges shall be clean cut and free from raggedness, and corners shall be cut sharp and square. Tolerances: Apply striping within a tolerance 1/2 inch in 50 feet. Apply markings and striping to widths indicated with a tolerance of 1/4 inch on straight sections and 1/2 inch on curved sections.

F. Colors: As directed by Architect

G. Precast Concrete Bumpers: Install in location where shown, using steel rebar dowels, and epoxy.

3.04 DEFECTIVE ASPHALT;
Defective asphalt is as described below.

A. Exposed rock pockets on the finished surface that lack the # 8- #200 fines that is required per the sieve analysis.

B. Asphalt not placed to the design grades.

C. Asphalt that ponds water.

D. Asphalt that was compacted below the minimum required temperature and is cracked.

E. Asphalt that fails to meet the minimum compaction requirements.

F. Asphalt that lacks the minimum thickness required per plan.

G. New asphalt contaminated by a petroleum product, or spilled paint.

H. Asphalt that has depressions, cracks, scored divits from dumpster wheels, heavy equipment use, heavy construction products,

I. Asphalt placed on pumping, unstable sub-grades.

3.05 CLEANING

A. Refer to Section 01 74 00.

B. Upon completion of work of this Section promptly remove from the working area all scraps, debris and surplus material of this Section.

C. Clean excess material from surface of all concrete walks and utility structures.

END OF SECTION

SECTION 32 16 00

SITE CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

A. SECTION INCLUDES:

1. The Section describes the requirements for providing Portland cement concrete paving, including accessibility ramps, sidewalks, accessible routes of travel, vehicular travel, drain structures, sewer structures, thrust blocks and for other non-structural or non-vehicular applications.

B. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.

2. Section 01 50 00, Construction Facilities and Temporary Controls.

3. Section 310000, Earthwork.

1.02 REFERENCES AND STANDARDS

A. California Building Code, latest edition.

B. ACI Standards, ACI 301-20.

C. ASTM C94, Specification for Ready-Mixed Concrete.

D. Concrete Reinforcing Steel Institute (CRSI) Manual of Standard Practice (latest edition).

E. ASTM – American Society for Testing and Materials.

1.03 SUBMITTALS

A. Refer to Section 01 33 00.

B. Manufacturer's Data: Submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, published warranty or guarantee, installation instructions, and maintenance instructions.

C. Materials list: Submit to the Architect a complete list of all materials proposed to be used in this

portion of the work. Submitted items should include but are not limited to sand, gravel, admixtures, surface treatments, coloring agents, sealers, fibers, cast-in-place accessories, forming and curing products and concrete mix designs.

D. With concrete submittal, provide documented history of mix design performance.

1.04 QUALITY ASSURANCE

A. Use only new materials and products.

B. Use materials and products of one manufacturer whenever possible.

C. All materials, components, assemblies, workmanship and installation are to be observed by the Owner's Inspector of Record. Work not so inspected is subject to uncovering and replacement.

D. Sieve analysis from testing laboratories identifying rock/sand percentages within the concrete mix; or class 2 aggregate base shall have the current project name and project location identified on the report. Outdated analytical reports greater than 90 days old will not be accepted

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver undamaged products to job in manufacturer's sealed containers and/or original bundles with tags and labels intact.

B. Store materials in protected, dry conditions off of ground and in areas so as to not interfere with the progress of the work.

C. Transport, store and handle in strict accord with the manufacturer's written recommendations.

D. Make delivery to job when notified by Contractor verifying that the job is ready to receive the work of this Section and that arrangements have been made to properly store, handle and protect such materials and work.

E. Store cement in weather tight building, permitting easy inspection and identification. Protect from dampness. Lumpy or stale cement will be rejected.

F. Aggregates: Prevent excessive segregation, or contamination with other materials or other sizes of aggregate. Use only one supply source for each aggregate stock pile.

1.06 WARRANTY

A. Refer to General Conditions and Section 01 78 36.

1.07 TESTING

A. General: Refer to Section 01 40 00 – Quality Requirements.

B. Cement and Reinforcing shall be tested in accordance with CBC Section 1910A. Testing of reinforcing may be waived in accordance with Section 1910A.2 when approved by the Structural Engineer and DSA.

1.08 ADEQUACY AND INSPECTION

A. Design, erect, support, brace and maintain formwork and shoring to safely support all vertical and lateral loads that might be applied until such loads can be carried by concrete.

B. Notify Inspector, Architect and DSA at least 48 hours prior to placing of concrete.

1.09 PROTECTION

A. Finish surfaces shall be protected at all times from concrete pour. Inspect forming against such work and establish tight leak-proof seal before concrete is poured. Finish work damaged, defaced or vandalized during the course of construction shall be replaced by contractor at contractor expense.

1.10 FIELD MEASUREMENTS

A. Make and be responsible for all field dimensions necessary for proper fitting, slopes and completion of work. Report discrepancies to Architect before proceeding.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Cement: Portland cement, ASTM C150, Type II, per ACI 301-20.

B. Concrete Aggregates: Normal weight aggregates shall conform to ASTM C33, except as modified by this section. Combined grading shall meet limits of ASTM C33. Lightweight aggregate shall conform to ASTM C330, suitably processed, washed and screened, and shall consist of durable particles without adherent coatings.

C. Water: Clean and free from deleterious amounts of acids, alkalis, scale, or organic materials and per ACI 301-20.

D. Fly Ash: Western Fly Ash, conforming to ASTM C618 for Class N or Class F materials (Class C is not permitted). Not more than 15% (by mass) may be substituted for Portland cement.

E. Water Reducing Admixture: Admixture to improve placing, reduce water cement ratio, and ultimate shrinkage may be used. Provide WRDA 64 by Grace Construction Products or approved equal. Such admixture must receive prior approval and shall be included in original design mix.

F. Air-entraining Admixture: Daravair 1000 by Grace Construction Products or approved equal. Admixture must conform to ASTM C260 and ACI 318-14, section 26.4.1.4.

G. Surface Retarder (for exposed aggregate finishes): Rugasol-S by Sika Corporation or approved equal.

H. Form Coating: Material which will leave no residue on concrete surface that will interfere with surface coating, as approved by the Architect.

I. Reinforcement Bars: New billet steel deformed bars conforming to requirements of ASTM A615 or ASTM A706; Grade 60. Dowels for installation through expansion joints or construction joints to existing sidewalks or concrete features shall be smooth or shall be sleeved on one end for slippage.

J. Reinforcing supports: Galvanized metal chairs or spacers or metal hangers, accurately placed 3'-0" O.C.E.W. Staggered and each support securely fastened to steel reinforcement in place. Bottom bars in footings may be supported with 3" concrete blocks with embedded wire ties. Concrete supports without wire ties will not be allowed.

K. Truncated Domes: Vitrified Polymer Composite (VPC), Cast-In-Place Detectable/Tactile Warning Surface Tiles; "Armor-Tile", "Access Tile Tactile Systems", or approved equal. Tiles shall comply with Americans with Disabilities Act and the California Code of Regulations (CCR) Title 24, Part 2, Chapter 11B (dome spacing shall be 2.35"). Install tiles as recommended by manufacturer. Color, federal yellow (FS 33538).

L. Curing Compound (for exterior slabs only): Burke Aqua Resin Cure by Burke by Edoco, 1100 Clear by W.R. Meadows or accepted equal. Water based membrane-forming concrete curing compound meeting ASTM C 309 and C1315.

M. Concrete Bonding Agent: Weld-Crete by Larson Products Corp., Daraweld C by Grace Construction Products or accepted equal.

N. Patching Mortar: Meadow-Crete GPS, one-component, trowel applied, polymer enhanced, shrinkage-compensated, fiber reinforced, cementitious repair mortar for horizontal, vertical and overhead applications as manufactured by W.R. Meadows or accepted equal.

O. Non-shrink Grout: Masterflow 713 Plus by Master Builders or approved equal. Premixed,non-metallic, no chlorides, non-staining and non-shrinking per CRD-C621, Corps of Engineers Specification and ASTM C 1107, Grades B and C.

P. Aggregate Base: Class 2 AB per Caltrans specification section 26-1.02A.

Q. Expansion Joint Material: Preformed 3/8" fiber material, full depth of concrete section, with bituminous binder manufactured for use as concrete expansion joint material, as accepted by the Architect.

R. Joint sealant for expansion joints: Single component silicone sealant, Type S, ASTM D5893.

1. Reference Standard: ASTM C920, Grade P, Class 25, Use T.
2. Dow Corning 890-SL (self-leveling) Silicone, or accepted equal.
3. Dow Corning 888-NS (non-sagging) Silicone, at slopes exceeding 5%. May not be used at asphalt surfaces.

4. Color: Custom color as selected by Architect.

S. Pre- Formed plastic Expansion Joint; W.R. Meadows 3/8" "Snap Cap", Tex-Trude expansion joint cap, or an approved equal.

T. Adhesive Anchoring (Epoxy): Simpson SetXP, or approved equal.

2.02 CONCRETE DESIGN AND CLASS

A. Class "B": Concrete shall have 1" max. size aggregate, shall have 3000 psi min. at 28 day strength with a maximum water to cementitious ratio no greater than 0.50. Use for exterior slabs, including walks, vehicular paved surfaces, manhole bases, poured-in-place drop inlets, curbs, valley gutters, curb & gutter and other concrete of like nature.

B. Slump Limits: Provide concrete, at point of final discharge, of proper consistency determined by Test Method ASTM C143 with a slumps of 4" plus or minus 1".

C. Mix Design: All concrete used in this work will be designed for strength in accordance with provisions of ASI 318-14 Section 26.4. Should the Contractor desire to pump concrete, a modified mix design will need to be submitted for review. Fly ash may be used in concrete to improve workability in amounts up to 15% of the total cementitious weight.

D. Air Entrainment; Per the Local Jurisdiction minimum requirements, or 3% minimum.

2.03 MIXING OF CONCRETE

A. Conform to requirements of CBC, Chapter 19A.

B. All concrete shall be mixed until there is uniform distribution of material and mass is uniform and homogenous; mixer must be discharged completely before the mixer is recharged.

C. Concrete shall be Ready-mixed Concrete.

1. Placement of concrete shall occur as rapidly as possible after batching and in a manner which will assure that the required quality of the concrete is maintained. In no case may concrete be placed more than 90 minutes from batch time.

2. Water may be added to the mix only if neither the maximum permissible water-cement ratio nor the maximum slump is exceeded. In no case shall more than 10 gallons of water shall be added to a full 9 yard load, or 1 gal. per yard on remaining concrete within the drum providing load tag indicates at time of mixing at plant will allow for additional water.

2.04 MATERIALS TESTING

A. Testing of concrete shall be performed per article 3.12 of this specification.

2.05 EQUIPMENT

A. Handling and mixing of concrete: Project Inspector may order removal of any equipment which in his opinion is insufficient or in any way unsuitable.

PART 3 - EXECUTION

3.01 APPROVAL OF FORMS AND REINFORCEMENTS

A. Forms and reinforcements are subject to approval by the Project Inspector, and notice of readiness to place first pour shall be given 48 hours prior to placement of concrete. Before placing concrete, clean tools, equipment and remove all debris from areas to receive concrete. Clean all reinforcing and other embedded items off all coatings oil, and mud that may impair bond with concrete.

B. All reinforcing steel shall be adequately supported by approved devices on centers close enough to prevent any sagging.

C. All reinforcing bar lap splices shall be staggered a minimum of 5 ft.

D. Additional reinforcing steel shall be placed around all utility boxes, valve boxes, manhole frames and covers that are located within the concrete placements.

1. The bars shall be placed so that there will be a minimum of 1 ½” clearance and a maximum of 3” clearance. The reinforcing steel shall be placed mid-depth of concrete slab.

E. At all right angles or intersections of concrete walks, additional 2’x2’ #5, 90 degree bars shall be added at all inside corners for additional crack control. The bars shall be placed 2” from concrete forms and supports at mid-depth of slab.

3.02 PROTECTION

A. Protect work and materials of this Section prior to and during installation, and protect the installed work and materials of other trades.

B. In the event of damage, make all repairs and replacements necessary to the approval of the Architect at no additional cost to the Owner.

C. Sub-Grade in vehicular concrete paved areas: Subgrade shall be clean, shaped and compact to hard surface free from elevations or depressions exceeding 0.05’ in 10' from true plan. Compact per Section 31 00 00. Compaction and moisture content shall be verified immediately prior to placement of concrete. Proof roll subbase in presence of geotechnical engineer prior to placement of aggregate base.

3.03 CLEANING

A. Reinforcement and all other embedded items at time of placing concrete to be free of rust, dirt oil or any other coatings that would impair bond to concrete.

B. Remove all wood chips, sawdust, dirt, loose concrete and other debris just before concrete is to be poured. Use compressed air for inaccessible areas. Remove all standing water from excavations.

3.04 FORMING

A. Form material shall be straight, true, sound and able to withstand deformation due to loading and effects of moist curing. Materials which have warped or delaminated, or require more than minor patching of contact surfaces, shall not be reused.

B. Build forms to shapes, lines, grades and dimensions indicated. Construct form work to maintain tolerances required by ACI 301. Forms shall be substantial, tight to prevent leakage of concrete, and properly braced and tied together to maintain position and shape. Butt joints tightly and locate on solid backing. Chamfer corners where indicated. Form bevels, grooves and recesses to neat, straight lines. Construct forms for easy removal without hammering, wedging or prying against concrete.

C. Space clamps, ties, hangers and other form accessories so that working capacities are not exceeded by loads imposed from concrete or concreting operations.

D. Build openings into vertical forms at regular intervals if necessary to facilitate concrete placement, and at bottoms of forms to permit cleaning and inspection.

E. Build in securely braced temporary bulkheads, keyed as required, at planned locations of construction joints.

F. Slope tie-wires downward to outside of wall.

G. Brace, anchor and support all cast-in items to prevent displacement or distortion.

H. During and immediately after concrete placing, tighten forms, posts and shores. Readjust to maintain grades, levels and camber.

I. Concrete paving, Curbs, Curb and Gutters, Ramps:

1. Expansion Joints: Install at locations indicated, and so that maximum distance between joints is 20’ for exterior concrete unless otherwise shown. Expansion joint material shall be full depth of concrete section. Recess for backer rod and sealant where required. Expansion joints shall not exceed ¼ inch depth measured from finish surface to top of felt or sealant, and ½ inch width.
2. Curbs, Valley Gutter, and Curb & Gutter: Install expansion joints at 60’ on center, except when placing adjacent to concrete walks, the expansion joints shall align with the expansion joints shown for the concrete walks. Expansion joint material shall be full depth of concrete section. Recess for backer rod and sealant will be required.
3. Isolation Joints: 3/8” felt between walls and exterior slabs or walks so that paved areas are isolated from all vertical features, unless specifically noted otherwise on plans.
4. Exterior Concrete Paving: Install expansion joints at 20’ on center maximum, both directions, unless shown otherwise on plans.
5. Ramps; whether shown or not all ramps shall have control joints and expansion joints.

a. Control joints on ramps shall be aligned and be placed in between with the vertical posts for the handrails. The curbs, if required shall have control joints that align with the handrail posts.
b. Expansion joints shall be placed at the upper, intermediate, and bottom landings.

3.05 FORM COATING

A. Before placement of reinforcing steel, coat faces of all forms to prevent absorption of moisture from concrete and to facilitate removal of forms. Apply specified material in conformance with manufacturer's written directions.

B. Before re-using form material, inspect, clean thoroughly and recoat.

C. Seal all cut edges.

3.06 INSTALLATION

A. General: Reinforcement shall be accurately placed at locations indicated on the drawings within required tolerances and providing required clearances. Reinforcement shall be secured prior to placement of concrete such that tolerances and clearances are maintained. Coverage shall be in accordance with Section 1907 of the CBC. Keep a person on the job to maintain position of reinforcing as concrete is placed. Reinforcement must be in place before concreting is begun. Install dowels as shown on drawings. Give notice whenever pipes, conduits, sleeves, and other construction interferes with placement; obtain method of procedure to resolve interferences. All expansion and construction joints in concrete shall have dowels of size and spacing as shown, or as approved by Architect.

B. Placing Tolerances:

1. Per ACI 301-20 Recommended Practice for Placing Reinforcing Bars, unless otherwise shown.

C. Splices:

1. General: Unless otherwise shown on drawings, splice top reinforcing at midspan between supports, splice bottom reinforcing at supports and stagger splices at adjacent splices 5 foot minimum. Bar laps shall be wired together. Reinforcing steel laps shall be as follows:
   a. Lap splices in concrete: Lap splice lengths shall not be less than 62 bar diameter for No. 5 bar, 56” minimum for No. 6 bars. No. 4 bar shall have a minimum of 24” splice. 93 bar diameters for No. 7 bars and larger.
   b. All splices shall be staggered at 5 feet minimum.

3.07 INSPECTION

A. Approval of reinforcing steel, after installation, must be received from Inspector. Architect, Structural Engineer and DSA must be notified 48 hrs. in advance of beginning of concrete placement operations.

B. Slope of concrete forms and finish condition shall be checked with a two foot (2’) digital level.

3.08 PLACING OF CONCRETE

A. Adjacent finish surfaces shall be protected at all times during the concrete pour and finishing. Verify that all formwork is tight and leak-proof before concrete is poured. Finish work defaced during the concrete pour and finishing shall be replaced at no extra cost to the owner.

B. Transport concrete from mixer to place of final deposit as rapidly as practicable by methods which will prevent separation or loss of ingredients. Deposit as close as practicable in final position to avoid re-handling or flowing. Partially hardened concrete must not be deposited in work. Concrete shall not be wheeled directly on top of reinforcing steel.

C. Placing: Once started, continue concrete pour continuously until section is complete between predetermined construction joints. Prevent splashing of concrete onto adjacent forms or reinforcement and remove such accumulation of hardened or partially hardened concrete from forms or reinforcement before work proceeds in that area. Free fall of concrete shall not to exceed 4'-0" in height. If necessary, provide lower openings in forms to inject concrete and to reduce fall height.

D. Remove form spreaders as placing of concrete progresses.

E. Place footings as monolithic and in one continuous pour.

F. Keep excavations free of standing water, but moisture condition sub-grade before concrete placement.

G. Compacting: All concrete shall be compacted by mechanical vibrators. Concrete shall be thoroughly worked around reinforcement and embedded fixtures and into corners of forms. Vibrating shall not be applied to concrete which has already begun to initially set nor shall it be continued so long as to cause segregation of materials.

H. Concrete Flatwork:

1. All flatwork shall be formed and finished to required line and grades. Flatwork shall be true and flat with a maximum tolerance of 1/8" in 10’ for flatness. Flatwork which is not flat and are outside of the maximum specified tolerances shall be made level by the Contractor at no additional expense to the Owner.
2. Thoroughly water and soak the flatwork subgrade as required to achieve required moisture content prior to the concrete pour. Provide damming as required to keep water within the formed area and to allow for proper saturation of the subgrade.
3. Concrete vibrator shall be used to assist concrete placement. Contractor shall have spare concrete vibrator on site during concrete placement.

I. Placing in hot weather: Comply with ACI 305R-10. Concrete shall not exceed 85 degrees F at time of placement. Concrete shall be delivered, placed and finished in a sufficiently short period of time to avoid surface dry checking. Concrete shall be kept wet continuously after tempering until implementation of curing compound procedure in accordance with this specification.

J. Placing in cold weather: Comply with ACI 306R-16. Protect from frost or freezing. No antifreeze admixtures are permitted. When deposited concrete during freezing or near-freezing weather, mix shall have temperature of at least 50 degrees F but not more than 90 degrees F. Concrete shall be

maintained at temperature of at least 50 degrees F for not less than 72 hours after placing or until it has thoroughly hardened. Provide necessary thermal coverings for any flat work exposed to freezing temperatures.

K. Horizontal construction joint: Keep exposed concrete face of construction joints continuously moist from time of initial set until placing of concrete; thoroughly clean contact surface by chipping entire surface not earlier than 5 days after initial pour to expose clean hard aggregate solidly embedded, or by approved method that will assure equal bond, such as green cutting. If contact surface becomes contaminated with soil, sawdust or other foreign matter, clean entire surface and re-chip entire surface to assure proper adhesion.

3.09 CONCRETE FINISHES

A. Concrete Slab Finishing: Surface shall be free from trowel marks, depressions, ridges or other blemishes. Tolerance for flatness shall be 1/8" in 10'. Provide final finish as follows:

1. Flatwork, medium broom finish: Typical finish to be used at all exterior walks and stairs.
2. Ramps, heavy broom finish: Concrete surfaces with slope greater than 5% including all ramps. Brooming direction shall run perpendicular to slope to form non-slip surface
3. Under no circumstances can water be added to the top surface of freshly placed concrete.

B. Curb Finishing: Steel trowel.

C. Joints and Edges: Mark-off exposed joints, where indicated, with ¼” radius x 1” deep jointer or edging tool. Joints to be clean, cut straight, parallel or square with respect to concrete walk edge. Tool all edges of exposed expansion and contraction joints, walk edges, and wherever concrete walk adjoins other material or vertical surfaces.

1. The expansion joints shall be full depth as shown in the plan details. Failure to do so will result in non-compliance and shall be immediately machine cut by the contractor at his expense.

D. Exposed Concrete Surface Finishing (not including top surface of flatwork): Remove fins and rough spots immediately following removal of forms from concrete which is to be left exposed. Damaged and irregular surfaces and holes left by form clamps and sleeves shall be patched with grout. Tie wires are to be removed to below exposed surface and holes pointed up with neat cement paste similar to procedure noted under "Patching" below. Removal of tie wires shall extend to distance of 2" below established grade lines. Ends of tie wires shall be cut off flush at all other, unexposed locations. Care shall be taken to match adjacent finishes of exposed concrete surface. After patching, all concrete that is to remain exposed, shall be sacked with a grout mixture of 1-part cement, 1 1/2- parts fine sand and sufficient water to produce a consistency of thick paint. After first wetting the concrete surface, apply mixture with a brush and immediately float entire surface vigorously using a wood float. Keep damp during periods of hot weather. When set, excess grout shall be scraped from wall with edge of steel trowel, allowed to set for a time, then wiped or rubbed with dry burlap. Entire finishing operation of any area shall be completed on the same day. This treatment shall be carried to 4" below grade, and all patching and sacking shall be done immediately upon removal of the forms.

3.10 CURING

A. Flatwork/Variable Height Curbs, Curb and gutter, Valley Gutter: Cure utilizing Curing Compound. If applicable, the Contractor shall verify that the approved Curing Compound is compatible with the approved colorant system. Upon completion of job, wash clean per manufacturer's recommendations.

   1. Curing compound shall be applied in a wet puddling application. Spotty applications shall be reason for rejection and possibly concrete removal and replacement at the contractor's expense with no compensation from the owner.

B. No Curing Compound shall be applied to areas scheduled to receive resilient track surface including, curbs, ramps, run ways, etc.

3.11 DEFECTIVE CONCRETE

A. Determination of defective concrete shall be made by the Architect or Engineer. Their opinion shall be final in identifying areas to be replaced, repaired or patched.

B. The Owner reserves the right to survey the flatwork, if it is determined to be outside of the maximum tolerance for flatness. If the flatwork is found to be out of tolerance, then the Contractor will be required to replace concrete. The Contractor will be responsible for reimbursing the Owner for any surveying costs incurred. Determination of flatwork flatness, surveying and any remedial work must be completed far enough in advance so that the project schedule is maintained, delays are avoided and the new flatwork or flatwork repairs are properly cured.

C. As directed by Architect, cut out and replace defective concrete. All defective concrete shall be removed from the site. No patching is to be done until surfaces have been examined by Architect and permission to begin patching has been provided.

D. Permission to patch any area shall not be considered waiver of right, by the Owner, to require removal of defective work, if patching does not, in opinion of Architect, satisfactorily restore quality and appearance of surface.

E. Defective concrete is:

   1. Concrete that does not match the approved mix design for the given installation type.
   2. Concrete not meeting specified 28-day strength.
   3. Concrete which contains rock pockets, voids, spalls, transverse cracks, exposed reinforcing, or other such defects which adversely affect strength, durability or appearance.
   4. Concrete which is incorrectly formed, out of alignment or not plumb or level.
   5. Concrete containing embedded wood or debris.
   6. Concrete having large or excessive patched voids which were not completed under Architect's direction.
   7. Concrete not containing required embedded items.
   8. Excessive Shrinkage, Traverse cracking, Crazing, Curling; or Defective Finish. Remove and

replace if repair to an acceptable condition is not feasible.

9. Concrete that is unsuitable for placement or has set in truck drum for longer than 90 minutes from the time it was batched.
10. Expansion joint felt that is not isolating the full depth of the concrete section, and recessed as required for backer rod and sealant where required.
11. Concrete that is excessively wet or excessively dry and will not meet the minimum or maximum slump required per mix design.
12. Finished concrete with oil stains from equipment use, and or rust spots that cannot be removed.
13. Control joints (weakened planed joints) that do not meet the required minimum depth shown on the drawings.

F. Patching: Install specified Patching Mortar per manufacturer's recommendations. REPAIRS TO DEFECTIVE CONCRETE WHICH AFFECT THE STRENGTH OF ANY STRUCTURAL CONCRETE MEMBER OR COMPONENT ARE SUBJECT TO APPROVAL BY THE ARCHITECT AND DSA.

3.12 CONCRETE TESTING

A. Comply with CBC Section 1903A, 1905A.1.16, 1910A and 1705A.3 and as specified in B. below. Costs of tests will be borne by the Owner.

B. Four identical cylinder samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, or not less than once for each 50 cubic yards of concrete, or not less than once for each 2,000 square feet of surface area for slabs or walls. In addition, samples for strength tests for each class of concrete shall be taken for seven-day tests at the beginning of the concrete work or whenever the mix or aggregate is changed.

C. Strength tests will be conducted by the Testing Lab on one cylinder at seven (7) days and two cylinders at twenty-eight (28) days. The fourth remaining cylinder will be available for testing at fifty-six (56) days if the 28-day cylinder test results do not meet the required design strength.

D. On a given project, if the total volume of concrete is such that the frequency of testing required by paragraph B. above would provide less than five strength tests for a given class of concrete, tests shall be made from at least five randomly selected batches or from each batch if fewer than five batches are used.

E. Cost of retests and coring due to low strength or defective concrete will be paid by Owner and back-charged to the Contractor.

F. Each truck shall be tested for slump before concrete is placed.

3.13 REMOVAL OF FORMS

A. Remove without damage to concrete surfaces.

B. Sequence and timing of form removal shall ensure complete safety of concrete structure.

C. Forms shall remain in place for not less than the following periods of time. These periods represent cumulative number of days during which temperature of air in contact with concrete is 60 degrees F and above.

1. Vertical forms of foundations, walls and all other forms not covered below: 5 days.
2. Slab edge screeds or forms: 7 days.
3. Concrete columns and beam soffits: 28 days.

D. Concrete shall not be subjected to superimposed loads (structure or construction equipment) until it has attained its full design strength and not for a period of at least 21 days after placing. Concrete systems shall not be subjected to construction loads in excess of design loads.

3.14 CLEANING

A. Refer to Section 01 74 00.

B. Upon completion of work of this Section promptly remove from the working area all scraps, debris and surplus material of this Section.

C. Clean excess material from surface of all concrete walks and utility structures.

D. Power wash all concrete surfaces to remove stains, dried mud, tire marks, and rust spots.

END OF SECTION

SECTION 32 17 26

TRUNCATED DOMES

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Cast in Place Tactile Detectable Warning Tiles where shown on Drawings.

B. Surface Applied Tactile Detectable Warning Tiles where shown on Drawings.

1.2 RELATED SECTIONS

A. Section 33 13 13—Portland Cement Concrete Paving.

1.3 REFERENCES

A. California Building Code (2022) – Title 24

1.4 SUBMITTALS

A. Submit shop drawings of installation at each location indicated on the Drawings clearly showing full extent of area of work.

B. Provide product data on specified products, describing physical and performance characteristics, sizes, patterns and colors.

C. Submit two (2) samples approximately 6 x 12 inches in size, of each type, illustrating color and pattern for tile specified. Submit color chart clearly indicating manufacturer’s full range of standard colors.

D. Submit manufacturer's installation instructions under provisions of Section 00 72 00.

1.5 MAINTENANCE DATA

A. Submit cleaning and maintenance data under provisions of Section 00 72 00.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Environmental Conditions and Protection: Maintain minimum temperature of 40 degrees F in spaces to receive tactile tiles for at least 48 hours prior to installations, during installation, and for not less than 48 hours after installation. Store the detectable/tactile tiles material in spaces where they will be installed for at least 48 hours before beginning installation. Subsequently, maintain minimum temperature of 40 degrees F in areas where work is completed.

1.7 EXTRA MATERIALS

A. Provide 2 individual 24” x 36” tiles, of each type, under provisions of Section 00 72 00.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Cast in Place Tactile Detectable Warning Tiles:

1. Vitrified Polymer Composite (VPC) Cast In Place Detectable/Tactile Warning Surface

Tiles shall be an epoxy polymer composition with an ultra violet stabilized coating employing aluminum oxide particles in the truncated domes.

2. The tile shall incorporate an in-line pattern of truncated domes configuration conforming to the requirements of 2022 CBC.
3. For wheelchair safety the field area shall consist of a non-slip surface with truncated domes with a diameter of .9 inch at the base tapered to .45 inch at the top, with nominal height of .2 inch and spaced 2.35” apart when measured on the perpendicular. See detail on Drawings.
4. Color to be “Federal Yellow” (FS 33538, 11B-705.1.1.5 and 11B-705.1.2.5)
5. Tiles to be Nominal 3 ft. by 2 ft. by 1.375 inches thick; 1.575 inches thick at the domes, with 1-3/8” inch deep perimeter flange and seven 1 3/8” deep internal flanges and be designed for cast in place installation as manufactured by:
   a. Access Products, Inc.

      241 Main Street, Suite 100

      Buffalo, NY 14203

      888-679-4022

      sales@accessproducts.com
   b. Approved equal.

PART 3 – EXECUTION

3.1 PREPARATION

A. Thoroughly clean new or existing surface. Remove all debris, dirt, grease, etc., at full extent of area to receive tile application.

3.2 INSTALLATION

A. Cast in Place Tactile Detectable Warning Tiles:
   1. During Cast-In-Place Detectable/Tactile Warning Tile installation procedures, ensure adequate safety guidelines are in place and that they are in accordance with the applicable industry and government standards.
   2. The specifications of the structural embedment flange system and concrete sealants and related materials shall be in strict accordance with the contract documents and the guidelines set by their respective manufacturers.
   3. The physical characteristics of the concrete shall be consistent with the contract specifications while maintaining a slump range of 4 - 7 to permit solid placement of the Cast-In-Place Detectable/Tactile Warning Tile system. An overly wet mix will cause the tile to float, therefore under all conditions, suitable weights such as concrete blocks or sandbags (25 lb) shall be placed on each tile module.
   4. Prior to placement of the Cast In Place Detectable/Tactile Warning Tile system, the contract drawings shall be reviewed and a layout drawing prepared by the installation contractor to

resolve the issues related to pattern repeat, tile cuts, expansion joints, control joints, platform curves, platform end returns and platform surface interferences.

5. The concrete pouring and finishing operations require typical mason's tools, however, a mason's line, radius edge (1/8 x 3/16" return) tool, 4' long x 2" wide x 1/8" thick steel straight edge, 25 lb. weights, vibrator wand and small sledge hammer with 2" x 6" x 20" wood tamping plate are specific to the installation of the Cast-In-Place System.
6. The concrete shall be poured and finished level, true and smooth to the required dimensions prior to tile placement. Immediately after pouring concrete, a mason's line should be strung parallel to track to act as a reference line for placement of tile, and then the tile assembly shall be placed true to the platform edge and to each other on the concrete. The Cast-In-Place tiles shall be tamped or vibrated into the fresh concrete to ensure that the field level of tile is flush to the adjacent concrete or platform edge surface. The shop drawings indicate that the tile field level (base of truncated dome) is flush to adjacent surfaces to permit proper water drainage and eliminate tripping hazards between adjacent finishes. The tolerance for elevation differences between tile and adjacent surface is 1/16".
7. Immediately after tile placement, the tile elevation is to be checked to adjacent concrete or rubbing board heights with a steel straight edge. The tile elevation should be set consistent with shop drawings to permit water drainage to or away from track as the platform design dictates.
8. While concrete is workable steel edging trowel 1/8" radius x 3/16" return is to be used to edge the tile to adjacent concrete surfaces running parallel to track. While edging, ensure that a clean edge definition is created between tile and adjacent concrete and that tile to concrete elevations meet the shop drawing tolerances.
9. The placement of Cast-In-Place Tile assemblies to each other and to the mason's line or form edge shall be true and parallel to develop a true line consistent with the platform edge. A tight tile to tile placement can best be achieved by raking out the concrete at the butting edge to avoid trapping concrete or aggregate between tiles and/or form edge.
10. During and after the tile installation and the concrete curing stage, it is imperative that there is no walking, leaning or external force placed on the tile to rock the tile, causing a void between the underside of tile and concrete.
11. Following tile placement, review installation tolerances to shop drawings and adjust tile before the concrete sets, suitable weights of 25 lb. shall be placed on each tile and additional weights at tile to tile assemblies as necessary to ensure solid contact of tile underside to concrete.
12. Following the curing of the concrete, the protective plastic wrap is to be removed from the tile face by cutting the plastic with a sharp knife tight to the concrete/tile interface. If concrete bleeding occurs between tiles, a wire brush will clean the residue without damage to the tile surface.
13. An elastomeric polyurethane sealant can be applied (not typical) to the tile edges running parallel to the track or curb. Proper surface preparation requires that the tile and adjacent surfaces are mechanically etched with sandpaper or a carbide burr and wiped clean and dry

with acetone. Applications of the polyurethane sealant shall be level to the adjacent surface and a straight line formed to the tile edge. A quality installation of the sealant may require that the tile face be masked off with duct tape to ensure a clean definition of sealant to the adjacent surfaces.

14. Following the concrete curing stage, protective plastic wrap is to be removed from the tile surface by cutting the plastic with a sharp knife, tight to the concrete/tile interface. If concrete bled under the plastic, a soft brass wire brush will clean the residue without damage to the tile surface.

3.3 CLEANING AND PROTECTION

A. Protect tiles against damage during construction period to comply with manufacturer's specification.

B. Protect tiles against damage from rolling loads following installation by covering with plywood.

C. Clean tiles not more than four days prior to date scheduled for inspection intended to establish date of substantial completion in each area of project. Clean tiles by method specified by tile manufacturer.

END OF SECTION

SECTION 32 31 13

CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.01 SUMMARY

A. SECTION INCLUDES

1. Fence framework, fabric, and accessories.

2. Excavation for post bases; concrete foundation for posts.

3. Manual gates and related hardware.

B. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 32 16 00: Site Concrete.

1.02 REFERENCES

A. ANSI/ASTM A123 - Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.

B. ANSI/ASTM F567 – Installation of Chain link Fence.

C. ASTM A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

D. ASTM C94 – Ready-mixed Concrete.

E. Chain link Fence Manufacturers' Institute (CLFMI) – Product Manual.

1.03 SYSTEM DESCRIPTION

A. Fence Height: 4'-0" unless otherwise noted.

B. Line Post Spacing: At intervals not exceeding 10 feet.

1.03 SUBMITTALS

A. Submit shop drawings and product data under provisions of Section 01 33 00.

1.04 QUALITY ASSURANCE

A. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum three years experience.

B. Installer: Company specializing in installations of chain-link fencing with a minimum of five years of experience. If any welding is required provide welders' certificates, verifying AWS qualification within the previous 12 months.

1.05 FIELD MEASUREMENTS

A. Verify field measurements are as indicated on shop drawings.

1.06 WARRANTY

A. Manufacture of slats to provide a 25 year warranty against color fading and breakage of slats.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Fabric:

1. Type C - Non-Slatted Fabric: Black vinyl coated tight weave: 2" mesh, 9-gauge zinc coated steel wire coated with black vinyl, top selvage knuckled tight, bottom selvage knuckled end closed. Posts to be powder coated where vinyl coated fabric occurs. Finish: ASTM F 668 Class 2b, 7mil (0.18 mm) thickness thermally fused over zinc-coated wire. Color shall be: BLACK.

B. Line Posts: ASTM F1083 SCH 40 galvanized, round, 2.875 inch diameter. Color shall match vinyl or existing fence, where occurs.

C. Terminal and Corner Posts: ASTM F1083 SCH 40 galvanized, round, 4.000 inch diameter. Color shall match vinyl or existing fence, where occurs.

D. Gate Posts: ASTM F1083 SCH 40 galvanized, round, 4.0 inch diameter. Color shall match vinyl or existing fence, where occurs.

E. Gate Frame: 1-7/8 inch SCH 40 galvanized diameter, for fittings and truss rod fabrication. Color shall match vinyl or existing fence, where occurs.

F. Top Rail, Middle Brace Rail and Bottom Rail: ASTM F1083 SCH 40 galvanized, round, 1.66 inch diameter, plain end, sleeve coupled at top. Color shall match vinyl or existing fence, where occurs.

G. Tie Wires: 9 gauge galvanized steel wire. Color shall match vinyl or existing fence, where occurs.

H. Concrete: ASTM C94; Portland Cement, 2,500 p.s.i. strength at 28 days, 3 inch slump; one inch maximum sized coarse aggregate.

I. Kickplate: 12 ga. Steel hot dipped galvanized. Color shall match vinyl or existing fence, where occurs.

J. Cane Bolt Receiver: 1-1/4” x 8” galvanized pipe. Color shall match vinyl or existing fence, where occurs.

2.02 ACCESSORIES

A. Caps: Cast steel galvanized; sized to post diameter, set screw retainer. Color shall match vinyl or existing fence, where occurs.

B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel galvanized. Color shall match vinyl or existing fence, where occurs.

2.03 FINISHES

A. Components and Fabric: Galvanized to ANSI/ASTM A123; 1.2 oz./sq. ft. Color shall match vinyl or existing fence, where occurs.

B. Hardware: Galvanized to ASTM A153, 1.2 oz./sq. ft. coating. Color shall match vinyl or existing fence, where occurs.

C. Accessories: Same finish as framing. Color shall match vinyl or existing fence, where occurs.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install framework, fabric, accessories and gates in accordance with ANSI/ASTM F567-93 and manufacturer’s instructions.

B. Drill caissons to diameter and depth as shown in the drawings, and or details. Clean holes and remove all loose dirt to a hard undisturbed bottom.

1. When placing fence posts in existing asphalt, the existing asphalt shall be cored drilled with a diamond core hole saw 3’ larger than the caisson diameter. Under no circumstances shall an auger dirt bit be used to drill through the asphalt.

2. When placing fence posts where the new surrounding finish surface will be asphalt, the fence posts shall be placed first before the asphalt is laid. Top of post caisson shall be at the top of aggregate base.

C. Set intermediate, terminal and gate posts plumb in concrete caisson. Slope top of concrete for water runoff. Use concrete vibrator in each caisson during concrete placement to settle and seat concrete.

D. Line, Terminal, and Gate Post Footing Depth Below Finish Grade: 42 inches and 12 inches diameter.

E. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail, on bay from end and gate post.

F. Provide top rail through line post tops and splice with 6 inch long rail sleeves.

G. Install center and bottom rails all around enclosure.

H. Stretch fabric between terminal posts.

I. Position bottom of fabric 1 inch above finished grade.

J. Fasten fabric to top, center and bottom rail and line posts with tie wire at maximum 12 inches on centers.

K. Attach fabric to end, corner and gate posts with tension bars and tension bar clips at 12 inches on center.

L. All field welding to be performed by certified welder and all welds are to be ground down smooth and treated.

M. All areas of welds are to be thoroughly cleaned, fluxed, and treated with galvanizing zinc “Hot Stick”. Do not over heat pipe when treating.

3.02 ERECTION TOLERANCES

A. Maximum variation from plum: 1/8 inch.

B. Maximum offset from true position: 3/8 inch.

C. Components shall not infringe adjacent property lines.

END OF SECTION

REVISION SUMMARY

SECTION 32 80 00

IRRIGATION

PART 1 – GENERAL

Construction Documents and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to this section.

1.01 SUMMARY

A. DESCRIPTION

1. Scope of Work: Furnish all labor, materials, tools, equipment, and transportation required to perform and complete the installation of an automatic sprinkler irrigation system, including all piping, sprinkler heads, controls, connections, testing, etc. as shown on the Drawings and as specified herein. The source of water for this project is potable water.
2. Utilize and accept as standards manufacturer's recommendations and/or installation details for any information not specifically detailed on the Drawings.

B. RELATED SECTIONS

1. General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 03 10 00 - Concrete Forming.
3. Division 26 – Electrical.
4. Section 31 00 00 – Earthwork.
5. Section 31 13 16 – Tree Protection.
6. Section 32 16 00 – Site Concrete.
7. Section 32 90 00 – Landscaping.

1.02 SUBMITTALS

A. Comply with requirements of Section 01 33 00 – Submittal Procedures.

B. Product names are used as standards; provide proof as to equality of any proposed material and do not use other materials or methods unless approved in writing by the Owner's Representative. Submit no more than one request for substitution for each item. The decision of the Owner's Representative is final.

C. Use equipment capacities specified herein as the minimum acceptable standards.

D. List materials in the order in which they appear in Specifications; include substitutions. Submit the list for approval by the Owner's Representative.

E. Make any mechanical, electrical, or other changes required for installation of any approved,

substituted equipment to satisfaction of Owner's Representative and without additional cost to Owner. Approval by Owner's Representative of substituted equipment and/or dimensional drawing does not waive these requirements.

F. Do not construe approval of material as authorization for any deviations from Specifications unless attention of Owner's Representative has been directed to specified deviations.

G. Record Drawings: Upon completion of work, and as a precedent to final payment, deliver to Owner's Representative one complete set of reproducible originals of Drawings showing work exactly as installed

1. Regularly update plans of the system and any changes made to the system throughout the project. Record all changes on this plan before trenches are backfilled.
2. Record the as-built information on reproducible plans provided by the Architect. Complete and submit the Record Drawings to the Architect before applying for payment for work installed.
3. As-built drawings are to be completed electronically with a pdf editing software or computer aided drafting software. As-built drawing done by hand will not be accepted for final submittal.
4. Show the following on the Record Drawings accurately to scale and dimensioned from two permanent points of reference:

   a. Distance of mainline from nearby hardscape.
   b. Location of automatic control valves, quick couplers, and gate valves.
   c. Location and size of all sleeves.
   d. Location of automatic control wires and spares.

H. Operation Manuals: Deliver two complete sets of manufacturer's warranties, Contractor guarantees, instruction sheets, parts lists and operation manuals to the Architect before requesting final acceptance of the project. Do not request final inspection until the sets are approved.

1.03 QUALITY ASSURANCE

A. Qualifications of Contractor: Work must be completed by a licensed Landscape Contractor. Provide proof of five years of continuous experience in landscaping and irrigation of projects of similar size (+\- 20% of the construction cost) and scope for education campuses. Contractor to have a minimum of two projects either completed or in construction in the last five years.

B. Work Force: Ensure that an experienced foreman is present at all times during installation. Keep the same foreman and workers on the job from commencement to completion.

C. Reviews: Specifically request reviews of all items listed below in "Inspection Requirements" prior to progressing to the next level of work.

D. Certification: Ensure that the contractor installing the Central Control System is trained and certified in the installation of the Central Control System. The training and certification must have been completed within two years prior to the installation date.

E. Standards:

1. Provide work and material in full accordance with the rules and regulations of the California Electric Code; the California Plumbing Code; and other applicable state or local laws or regulations.
2. Furnish, without extra charge, additional material and labor required to comply with these rules and regulations, though the work may not be specifically indicated in the Specifications or Drawings.
3. Where the Specification requirements exceed those of the above-mentioned codes and regulations, comply with the requirements in the Specifications.

F. Comply with the requirements of Section 01 77 00 – Closeout Procedures.

G. Inspection Requirements

1. Request and hold a pre-construction meeting prior to beginning the work of this Section. Parties required to be in attendance are the Landscape Contractor, Project Inspector, Owner's Representative, and the Landscape Architect.
2. Prior to commencement of the work of this Section, obtain written verification from the project Civil Engineer that the rough grade in landscape areas is in conformance with Section 31 00 00 - Earthwork.
3. Obtain verification from Project Inspector for the following at the appropriate times during construction and prior to further progression of work in this Section:

    a. Pressure testing of all mainlines and lateral lines (See "Hydrostatic Tests – Open Trench" in Part 3.05 of this Section),
    b. Trench depth,
    c. Sleeves under pavement,
    d. Flushing of all mainlines and lateral lines,
    e. Installation of mainline thrust blocks,
    f. Installation of Leemco joint restraints and bolts,
    g. Backfill and pipe bedding,
    h. Layout of heads,
    i. Operation of system and coverage adjustments (with Landscape Architect) after system is fully automated and operational, backfill of trenching is completed, and surface has been restored to original grades.

4. In case of failure to obtain any verification by the Project Inspector as required above, remove and replace work as necessary to obtain the verification at no additional cost to the Owner.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Use all means necessary to protect irrigation system materials before, during, and after installation and to protect related work and material.

B. Handle plastic pipe carefully, especially protecting it from prolonged exposure to sunlight. Store pipe on beds that are the full length of the pipe, and keep pipe flat and off the ground with blocks.

1.05 PROJECT/SITE CONDITIONS

A. Information on Drawings relative to existing conditions is approximate. During progress of construction, make deviations necessary to conform to actual conditions, as approved by Owner's Representative, without additional cost to Owner. Accept responsibility for any damage caused to existing services. Promptly notify Owner's Representative if services are found which are not shown on Drawings.

B. Protect existing utilities within construction area. Repair damages to utility lines that occur as a result of operations of this work.

C. Verify dimensions at building site and check existing conditions before beginning work. Make changes necessary to install work in harmony with other crafts after receiving approval by Owner's Representative.

1.06 WARRANTY

A. Guarantee all workmanship and materials hereunder against defective workmanship and materials, including damage by leaks and settlement of irrigation trenches, for the duration specified in Division 01 of these Specifications. (The Contractor is not responsible for vandalism or theft after date of final acceptance.)

1.07 SYSTEM STARTUP

A. Central Control System

1. Install controllers, master valves, flow sensors, ground system, wiring, cables, Ethernet and any other components not shown on the Drawings.
2. Request that the manufacturer's representative participate and/or direct the start-up of the Central Control System. Start-up shall include all testing and settings for the following:

   a. Flow sensor
   b. Grounding
   c. Wire connections
   d. Pump start
   e. Bypass
   f. Overall instruction

3. Upon successful completion of testing by the Owner's technician, request that a checklist/certification be completed and signed by the technician. Deliver copies of the certification to both the Owner's Representative and the Landscape Architect prior to the commencement of the landscape maintenance period.
4. Run the system; record the flows per valve and report them to the Owner's Representative.

1.08 CLOSEOUT & MAINTENANCE

A. Furnish three complete sets of operating maintenance instructions bound in a hardback binder

and indexed. Start compiling data upon approval of list of materials. Do not request final inspection until booklets are approved by Owner's Representative.

B. Incorporate the following information in these sets:

1. Complete operating instructions for each item of irrigation equipment.
2. Typewritten maintenance instructions for each item of irrigation equipment.
3. Manufacturer's bulletins which explain installation, service, replacement parts, and maintenance.
4. Service telephone numbers and/or addresses posted in an appropriate place as designated by Owner's Representative.

C. Comply with requirements of Section 32 01 90 – Landscape Maintenance.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Use materials as specified; any deviation from the Specifications must first be approved by the Owner's Representative in writing. All material containers or certificates shall be clearly marked by manufacturer as to contents for inspection.

B. Automatic Controller: As indicated on Drawings.

C. Master Valves and Flow Sensors: As indicated on Drawings

D. Automatic Control Valves: As indicated on Drawings

E. Automatic Drip Control Valve Kit:. As indicated on Drawings

F. Gate Valve: As indicated on Drawings

G. Pipe and Fittings:

1. PVC pipe: for all mainline and lateral lines, PVC schedule 40 up to 3" size and PVC Class 200 for 4" and larger.
2. PVC fittings three-inch (3") size and smaller: High impact, standard weight, Schedule 40, molded PVC as manufactured by George Fischer, Lasco, Spears, or approved equal. [LEEMCO APPLICATION - PVC fittings for mainline two inches (2") and smaller and all lateral lines: High impact, standard weight, Schedule 40, molded PVC as manufactured by George Fischer, Lasco, Spears, or approved equal.]
3. PVC fittings four-inch (4") size and larger: High impact, standard weight, Class 200 gasketed, molded PVC as manufactured by George Fischer, Lasco, Spears, or approved equal. [LEEMCO APPLICATION - Ductile iron fittings for all mainline fittings two and one-half inches (2 ½") and larger: Leemco joint restraint fittings or approved equal.]
4. All plastic pipe and fittings: Continuously and permanently marked with manufacturer's name, type of material, IPS size, schedule, NSF approval, and code number.
5. Threaded PVC pipe and nipples: IPS Schedule 80 when necessary to use threaded

connections to gauges, valves, or control valves. Threaded adapters may be used in place of nipples when making pipe to valve connections.

6. Use 45-degree fittings for changes in depth of pipe, and at transition from main line to automatic control valves.
7. Piping above ground: Schedule 40 galvanized steel with cast-iron fittings.
8. Piping used for electrical purposes to be Schedule 40 PVC Rigid Nonmetallic Conduit electrical conduit.

H. PVC Primer: Weld-On P-70 Purple Primer or approved equal.

I. PVC Glue: Weld-On 711 Gray heavy bodied PVC Cement or approved equal.

J. PVC Glue for connections to Flexible PVC: Weld-On 795 Blue Flex PVC Cement or approved equal. Do not use the 795 clear color.

K. Sprinkler Heads: As indicated on Drawings

L. Quick Coupler Valves: As indicated on Drawings

M. All Valve Boxes and Covers:

1. Turf and Hardscape Areas: Concrete manufactured with steel checker plate lid with “Irrigation” permanently embossed on cover. Christy or approved equal.
2. Shrub Areas: Plastic manufactured with “Irrigation-Non-Potable” permanently embossed on cover.

N. Reduced Pressure Backflow Preventer: . As indicated on Drawings

O. Automatic Sprinkler Control Wire:

1. Connections between remote control valves and controller: 14 AWG direct burial plastic polyethylene (PE) insulated wire, Paige Electric P7079D or approved equal. Common wire to be white, and lead wire to be colored. If multiple controllers are used, a different color is to be used for each controller's lead wire. (Use red for the first controller). Spare wires are to be yellow.
2. UL Listed waterproof sealing pack for wire connections: 3M DBR/Y-6, or approved equal.
3. Provide adequate working space around electrical equipment in compliance with local codes and ordinances.
4. Electrical, other than low voltage, such as power wiring, conduit, fuses, thermal overloads and disconnect switches, is included under Division 26 of these Specifications.

P. Trace Wire:

1. Direct burial #12 AWG Solid, steel core soft drawn tracer wire, 250# average tensile break load, 30 mil high molecular-high density polyethylene jacket complying with ASTM-D-1248, 30-volt rating. Color shall be green.
2. Connectors: UL Listed waterproof sealing pack for wire connections: 3M DBR/Y-6, or approved equal.

Q. Master Valve and Flow Sensor Wire:

1. Master valve wires are to be 14 AWG direct burial plastic polyethylene (PE) insulated wire, Paige Electric P7079D or approved equal. Wire color to be blue for the lead and white for the common. If there are two master valves, the second master valve wire is to be blue/white striped for the lead and white for the common.
2. Flow sensor wires are to be 14 AWG direct burial plastic polyethylene (PE) insulated wire, Paige Electric P7079D or approved equal. Wire color to be black for the lead and white for the common. If there are two flow sensors, the wires leading to each flow sensor is to be a different color.

R. Unions And Flanges:

1. Steel unions and flanges two inches (2”) and smaller: 150 lb. screwed black (brass to iron seat) or galvanized malleable iron (ground joint).
2. Steel unions and flanges two and one-half inches (2 ½”) and larger: 150 lb. black flange union, flat-faced, full gasket.
3. Gaskets: One-sixteenth inch (1/16”) thick rubber Garlock No. 122, Johns-Manville or approved equal.
4. Flange Bolts: Open-hearth bolt steel, square heads with cold pressed hexagonal nuts, cadmium plated in ground. Provide copper-plated steel bolts and nuts or brass bolts and nuts for brass flanges.

S. Pipe Supports: Adjustable saddle support type support.

T. Valve Identification Tags: Christy’s irrigation ID tags, standard yellow color or approved equal.

U. Sand for Trench Backfill: Natural sand, free of roots, bark, sticks, rags, or other extraneous material.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Locations of existing utilities and other improvements shown on the Drawings are approximate. Verify existing conditions and, should any utilities be encountered that are not indicated on the plans, notify the Owner’s Representative immediately. Accept responsibility for any damages caused to existing services.

3.02 PREPARATION

A. Scheduling: Notify the Project Inspector prior to commencing and/or continuing the work of this Section. Remove and replace, at no cost to Owner, any work required as a result of failure to give the appropriate notification.

B. Examination: Examine conditions of work in place before beginning work; report defects.

C. Measurements: Take field measurements; report variance between plan and field dimensions.

D. Protection: Maintain warning signs, shoring and barricades as required. Prevent injury to, or defacement of, existing improvements. At no additional cost to Owner, repair or replace items damaged by installation operations.

E. Existing Tree Protection:

1. Avoid unnecessary root disturbance, compaction of soils within drip line, or limb breakage.
2. Do not store material or dispose of any material other than clean water within the drip line.
3. Provide adequate irrigation during construction.
4. Replace any tree damaged during construction with a tree of equal size and value at no additional cost to Owner.
5. Adjust trench locations in field to minimize damage to existing elements and plant roots of trees-to-remain at no additional cost to Owner.

F. Surface Preparation: Prior to beginning sprinkler irrigation work, complete placement of topsoil as specified in Section 31 00 00 – Earthwork. Notify Project Inspector of irregularities if any.

3.03 INSTALLATION

A. Automatic Controller

1. Automatic Controller: Install system and components as per Drawings and manufacturer's recommendations. All wiring connections shall be neatly accomplished within the controller cabinet. Connect Ethernet and grounding system as per manufacturer's recommendations.
2. Connect automatic control valves to controller(s) in sequence as shown on Drawings.
3. Install all exposed wires to a minimum of twenty-four inches (24") beyond controller within a UL approved rigid conduit.

B. Master Valves and Flow Sensor

1. Master Valve: Install as per manufacturer's recommendation. Connect master valve wiring to the automatic controller. Install wire in a conduit. Wire is not to have any splices between the valve and the controller.
2. Connect Master Valve to decoder cable using a single-station line decoder.
3. Flow Sensor: Install as per manufacturer's recommendation. When using a "saddle" installation, install at the correct depth in the pipe and orientate the paddle properly for accurate reading of flow. Connect flow sensor wire to the automatic controller. Install wire in a conduit. The wire is not to have any splices between the valve and the controller.
4. Connect Flow Sensor to decoder cable using a sensor decoder.

C. Reduced-Pressure Backflow-Prevention Device

1. Install where shown, per code, and per manufacturer's specification and written instructions.
2. Provide pipe supports and accessories as necessary to properly secure the assembly.

D. Control Wires

1. General: Install control wires beneath sprinkler main line whenever possible; tape wires to mainline pipe. Provide one spare wire for each controller.
2. Slack Wire: Provide eighteen inches (18”) of slack wire for each wire connected to automatic control valve. Slack wire shall be coiled and left in the valve box. Tape wires in bundles every ten feet (10’); do not tape wires in sleeves.
3. Expansion and Contraction: Snake wire in trench to allow for contraction of wire.
4. Wire Passing Under Existing or Future Paving or Construction: Encase in PVC Schedule 40 or galvanized steel conduit extending at least twelve inches (12”) beyond edges of paving or construction.
5. Wire Connections: Install wire connections in a waterproof sealing pack.
6. Wire Splicing: Permit splicing only on runs exceeding 500 feet. Locate all splices within valve boxes.
7. Wire Termination: Install wire in a valve box with eighteen inches (18”) of slack wire coiled and individually capped with approved waterproof sealing pack.
8. Spare Wire: Install two (2) spare wires along each wire path. If there is more than one wire path from the controller, the contractor to install two (2) spare wires per path. Provide eighteen inches (18”) of slack wire at each automatic control valve.

E. Trace Wire

1. General: Install trace wire above sprinkler main line whenever possible; tape wire to mainline pipe at 10’ intervals to ensure the wire remains adjacent to the pipe.
2. Wire Connections: Install wire connections in a waterproof sealing pack.
3. Trace wire access points shall be accessible at all automatic control valves.
4. At all mainline end caps, a minimum of six feet (6’) of tracer wire shall be coiled and secured to the cap for future connections. The end of the tracer wire shall be spliced to the wire of a six-pound zinc anode and is to be buried at the same elevation as the irrigation mainline.
5. Testing: The contractor shall perform a continuity test on all trace wires in the presence of the client. If the trace wire is found to be not continuous after testing, Contractor shall repair or replace the failed segment of the wire.

F. Automatic Control Valves and Quick Coupler Valves

1. Install where shown and where practical; place no closer than twelve inches (12”) to walk edges, building walls, or fences. Refer to detail for example.
2. Thoroughly flush mainline before installing valve.
3. Install valves in ground cover areas where possible. Valves shall be installed with lid flush to finish grade of soil. Upon acceptance of 90-day maintenance period, contractor shall cover boxes with bark mulch.

G. Piping

1. General: Install in conformance with reference standards, manufacturer’s written directions, as shown on Drawings and as herein specified.
2. Workmanship:

a. General: Install sprinkler irrigation equipment in planted areas throughout the site.
b. Coordination: Organize location of sleeves with other trades as required.

3. Pipeline Assembly:

a. General:

1.) Cutting: Cut pipe square; remove rough edges or burrs.
2.) Solvent-welded Connections: Use materials and methods recommended by the pipe manufacturer.
3.) Brushes: Use non-synthetic brushes to apply solvents and primer.
4.) Cleaning: Clean pipe and fittings of dirt, moisture, and debris prior to applying solvent or primer.
5.) Assembly: Allow pipe to be assembled and welded on the surface or in the trench.
6.) Expansion and Contraction: Snake pipe from side to side of trench to allow for expansion and contraction.
7.) Location: Locate pipes as shown on Drawings except where existing supply valves, utilities or obstructions prohibit or where slight changes are approved to better suit field conditions.

b. Elastomeric Seal (Gasket) Joints:

1.) General: Assemble in strict conformance with the pipe manufacturer's instruction.
2.) Rubber Rings: Use rubber rings specific for water service systems.
3.) Cleaning: Thoroughly clean ring and groove of dirt, moisture and debris using a clean, dry cloth. Do not use solvents, lubricants, cleaning fluids or other material for cleaning.
4.) Seating: Properly seat ring in groove.
5.) Spigot: Clean spigot-end of pipe as in "Cleaning" above prior to applying lubricant recommended by pipe manufacturer. Insert spigot into bell and seat to full depth required.

c. Connections:

1.) Threaded Plastic Pipe Connection:

a) Use Teflon tape or pipe joint compound.
b) When assembling to threaded pipe, take up joint no more than one full turn beyond hand-tight
2.) Metal Valves and Plastic Pipe: Use threaded plastic male adapters.
3.) Metal to Metal Connections:

c) Use specific joint compound or gasket material for type of joint made. Where pipe of dissimilar metals are connected, use dielectric fittings.

d) Where assembling, do not allow more than three full threads to show when joint is made up.

4.) Where assembling soft metal (brass or copper) or plastic pipe, use strap-type friction wrench only; do not use a metal-jawed wrench.

5.) Threading:

a) Do not permit the use of field-threading of plastic pipe or fittings. Use only factory-formed threads.

b) Use factory-made nipples wherever possible. Permit the use of field-cut threads in metallic pipe only where absolutely necessary. When field-threading, cut threads accurately on axis with sharp dies.

c) Use pipe joint compound for all threaded joints. Apply compound to male thread only.

d. Sleeves and conduits:

1.) Use sleeves of adequate size to accommodate retrieval for repair of wiring or piping and extend a minimum of twelve inches (12”) beyond edges of walls or paving.

2.) Provide removable, non-decaying plug at end of sleeve to prevent entrance of soil.

e. Unions: Locate unions for easy removal of equipment or valve.

f. Joint Restraints: Install per manufacturer’s recommendations.

g. Capping: Plug or seal opening as lines are installed to prevent entrance materials that would obstruct pipe. Leave in place until removal is necessary for completion of installation.

h. Drip Irrigation Tubing: Install as per Drawings.

H. Sprinkler Heads

1. Sprinkler heads: Locate as shown on the Drawings except where existing conditions prohibit, or slight changes are approved to achieve as good or better coverage under the same conditions. Do not allow sprinkler head spacing to exceed the maximum shown on the Drawings. Plumb heads.

2. Handling, Assembly of Pipe, Fittings, and Accessories: Allow only skilled tradesmen to handle and assemble pipe, fittings and equipment. Keep interior of pipes, fittings and accessories clean at all times. Close ends of pipe immediately after installation; leave closure in place until removal is necessary for completion of installation. Do not permit bending of pipe.

3. Flushing: Remove end heads and operate system at full pressure until all rust, scale, and sand is removed. Divert water to prevent ponding or damage to finished work.

4. Coverage: Accept responsibility for full and complete coverage of irrigated areas to satisfaction of Landscape Architect and make necessary adjustments to better suit field conditions at no additional costs to Owner.

3.04 CONSTRUCTION

A. Grading

1. Install all irrigation features to their finished grade and at depths indicated. Complete and /or accommodate all rough grading and/or finish grading before commencing with trenching.

B. Layout

1. Lay out work as accurately as possible to Drawings. Drawings are generally diagrammatic to extent that swing joint offsets and fittings are not shown. Record all changes on the Record Drawings.
2. Do not willfully install the irrigation system as shown on Drawings when it is obvious, in the field, that obstructions or other discrepancies exist which may not have been considered in the design. Notify Owner's Representative of discrepancies before proceeding.

C. Excavating And Trenching

1. General: Perform excavations as required for installation of work included under this Section, including shoring of earth banks to prevent cave-ins. Restore surfaces, existing underground installations, etc., damaged or cut as result of this work to their original condition and in a manner approved by the Landscape Architect.
2. Width:

    a. Make trenches wide enough to allow a minimum of six inches (6") between parallel pipelines and three inches (3") between side of pipe and side of trench. Do not allow stacking of pipe within trench.
    b. When second spare mainline is installed alongside the first mainline, allow for a minimum of twelve inches (12") horizontally between the two pipes.
    c. Allow a minimum clearance of twelve inches (12") in any direction from parallel pipes of other trades.

3. Preparation of Excavations: Remove rubbish and rocks from trenches. Bed pipe on a minimum of three inches (3") of clean, rock-free soil to provide a firm, uniform bearing for entire length of pipeline. Cover pipe with a minimum of three inches (3") of clean, rock-free soil. If clean, rock-free soil is not available, use sand for pipe bedding and three inches (3") of backfill above the pipe. The remainder of the trench backfill material can be native soil. Do not allow wedging or blocking of pipe.
4. Minimum depth of cover: Unless shown otherwise, provide the following minimums:

    a. Mainline: twenty-four inches (24") cover.
    b. Lateral line: twelve inches (12") cover for spray heads, and eighteen inches (18") cover for rotor heads.

5. Conflicts with other trades:

    a. Hand-excavate trenches where potential conflict with other underground utilities exist.
    b. Where other utilities interfere with irrigation trenching and piping work, adjust the trench depth as instructed by Owner's Representative.

D. Thrust Blocks

1. To resist system pressure on ring-tite PVC pipe and PVC fittings, provide thrust blocks at any change of direction, change of size, dead end, and/or valves at which thrust develops when closed. See thrust block details for examples.
2. Use cast-in-place concrete and size thrust blocks based on an average soil-safe bearing load of 700 lbs. per square foot.
3. Form thrust blocks in such a manner that concrete comes in contact only with the fittings. Place thrust block between adequately compacted soil and the fitting.
4. Thrust blocks are to be constructed of concrete with a minimum of 2500psi.
5. Thrust blocks are to be free, separate, and independent of adjacent or nearby thrust blocks.

E. Backfill And Compacting

1. General: Do not begin until hydrostatic tests are completed. When system is operating and after required tests and inspections have been made, backfill trenches under paving areas to the compaction rate specified in Section 31 00 00 – Earthwork.
2. Place backfill in six-inch (6”) layers and compact with an acceptable mechanical compactor.

    a. Compact backfill material in landscape areas to eighty-five percent (85%) maximum dry density of the soil.
    b. If settlement occurs along trenches, make adjustments in pipes, valves, and sprinkler heads, soil, sod or paving as necessary to bring the system, soil, sod or paving to the proper level or the permanent grade, without additional cost to the Owner.

3. Excess Soil: Remove all rocks, debris, and excess soil that results from sprinkler irrigation trenching operations, landscape planting, and soil preparation operations off site at no additional cost to the Owner. If soil meets topsoil requirements in Section 31 00 00 – Earthwork, it may be used for finish grading.
4. Finishing: Dress-off areas to eliminate construction scars.

F. Flushing Lines

1. Thoroughly flush lines prior to installing valves, performing hydrostatic testing, or installing sprinklers. Divert water to prevent washouts.

G. Concrete Work

1. Underground anchors and pads for valves boxes are included under this Section of Specifications. Concrete shall have a minimum strength of 2500 psi. The slump test shall be a four inch (4”) maximum slump. At twenty-eight days, the concrete shall have a minimum strength of 2500 psi. Use materials and mix in accordance with ASTM C 94. Refer to Section 32 16 00 - Site Concrete.

3.05 FIELD QUALITY CONTROL

A. Visual Inspection: Verify that all pipe is homogenous throughout and free from visual cracks, holes, or foreign materials. Inspect each length of pipe. All materials are subject to impact test at the discretion of the Landscape Architect.

B. Hydrostatic Tests – Open Trench:

1. Center-load piping with a small amount of backfill to prevent arching or slipping under pressure.
2. Request the presence of the Project Inspector in writing at least forty-eight hours in advance of testing.
3. At no additional cost to Owner, test in the presence of the Project Inspector.
4. Apply continuous static water pressure of 100 psi when welded plastic joints have cured at least twenty-four hours, and with the risers capped, as follows: test main lines and submains for four hours; test lateral lines for two hours.
5. Repair leaks resulting from tests; and repeat tests.
6. Test to determine that all sprinkler heads function according to manufacturer's data and give full coverage according to intent of Drawings. Replace any sprinklers not functioning as specified with ones that do, or otherwise correct system to provide satisfactory performance.

C. Continuity Testing: Test locating device and control wires for continuity prior to and after back-filling operations.

3.06 ADJUSTING

A. Adjusting System: Prior to acceptance, satisfactorily adjust and regulate entire system. Set watering schedule on controller appropriate to types of plants and season of year. Adjust remote control valves to operate sprinkler heads at optimum performance based on pressure and simultaneous demands through supply lines.

B. System Layout: Provide reduced prints of Record Document irrigation plans, laminated in four (4) mil. plastic, of size to fit controller door. Enlarge remote-control valve designations as necessary for legibility. Color-code areas covered by each station. Affix plans to inside of controller door.

C. Instructions: Upon completion of work, instruct maintenance personnel on operation and maintenance procedures for entire system.

D. Flow Charts: Record and prepare an accurate flow-rate chart for each automatic control valve.

3.07 CLEANING

A. Remove debris resulting from work of this Section.

END OF SECTION

SECTION 32 90 00

LANDSCAPING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Scope of Work: Furnish all labor, materials, tools, equipment, and transportation required to perform and complete the following work as specified herein:
2. Soil Preparation and Fertilization
3. Planting
4. Hydroseeding and/or Sodding
5. Weed Control
6. Decomposed Granite
7. Infield Mix
8. Mulch
9. Clean-up
10. Guarantee
11. Work not included in this Section: Landscape elements such as concrete walks, fencing, outdoor lighting, rough grading, and clearing are not a part of this Section unless shown on the landscape Drawings.

B. Related Sections:

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 31 00 00 – Earthwork.
3. Section 32 80 00 – Irrigation.

1.02 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures for additional requirements.

B. Plant Material: Within fifteen (15) days after award of contract, locate plant materials required for construction. Ensure that trees and shrubs are contract- grown from a certified nursery. Notify Owner's Representative of plant material "tied off" for review at selected nursery. If specified material is not obtainable, submit the following to Owner's Representative: proof of non-availability, proposal for use of equivalent material, photographs of alternative choices of plant material. Include clear, written description of type, size, condition, and general character of plant material.

C. Data Sheets: Provide product data for each type of landscape material indicated in the Drawings and Specifications.

D. Samples: Submit samples of the following materials to Landscape Architect for approval:

1. Soil amendment: (3) one-quart zip-locked plastic bags.
2. Bark Mulch: (3) one-quart zip-locked plastic bags.
3. Imported Topsoil: (3) one-quart zip-locked plastic bags. (if needed)
4. Baseball Infield Mix: (3) one-quart zip-locked plastic bags.
5. Decomposed Granite: (3) one-quart zip-locked plastic bags.

E. Provide soils analysis reports prepared by a qualified soils laboratory in compliance with the Soil Testing Requirements under "Soil Testing" in Part 3.02 of this Section.

F. Prior to planting, submit copies of all trucking or packaging tags for all soil amendment, fertilizer and other additives to Landscape Architect so the quantities can be verified.

G. Record Drawings: Upon completion of work, and as a precedent to final payment, deliver to Owner's Representative one complete set of reproducible originals of Drawings showing work exactly as installed.

1.03 QUALITY ASSURANCE

A. Qualifications: Work must be completed by a licensed Landscape Contractor. Provide proof of five years of continuous experience in landscaping and irrigation of projects of similar size (+\-20% of the construction cost) and scope for education campuses. Contractor to have a minimum of two projects either completed or in construction in the last five years.

B. Work Force: Ensure that an experienced foreman is present at all times during installation. Keep the same foreman and workers on the job from commencement to completion.

C. Reviews: Specifically request reviews of all items listed below in "Inspection Requirements" prior to progressing to the next level of work. The Owner's Representative reserves the right to inspect and reject material, both at place of growth and at site, before and/or after planting, for compliance with requirements for name, variety, size and quality.

D. Reference Standards: Meet or exceed Federal, State and County laws requiring inspection of all plants and planting materials for plant disease and insect control.

E. Delivery, Storage, and Handling:

1. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws if applicable.
2. Bulk Materials:

a. Do not dump or store bulk materials near structures, utilities, walkways or pavements, or on existing turf areas or plants.
b. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching

adjacent properties, water conveyance systems, or walkways.

c. Accompany each delivery of bulk fertilizers and soil amendments with appropriate certificates.

F. Plant Material:

1. Conform to the current edition of Horticultural Standards for quality of Number 1 grade nursery stock as adopted by the American Association of Nurserymen. Conform to sizes specified on plant legend. Select plants which have a natural shape and appearance.
2. Select only plants that are true to name, and tag one of each bundle or lot with the name of the plant in accordance with the standards of practice of the American Association of Nurserymen. In all cases, botanical names shall take precedence over common names.
3. Tag each plant of a patented variety with the variety and identification number, where applicable, as it is delivered to the job site.
4. Select only plants which have been nursery-grown in accordance with good horticultural practices and which have been grown under climatic conditions similar to those in the locality of the project for at least one year.
5. Select only plants which are typical of their species or variety; have normal habits of growth; are sound, healthy, vigorous, well-branched and densely-foliated when in leaf; are free of disease, insect pests, eggs or larvae; and have a healthy and well-developed root system.
6. Select only container stock that has been grown in the containers in which delivered for at least six (6) months, but not over two (2) years. Provide samples to show that there are no root-bound conditions.
7. Do not use plants that are severely pruned or headed-back to meet size requirements.
8. Do not plant container-grown plants that have cracked or broken balls of earth when taken from the container. Remove canned stock carefully from cans after containers have been cut on two sides with tin snips or other approved cutter.
9. Coordinate a time for the Landscape Architect to inspect the plants upon their delivery to the project site.
10. At any time prior to final acceptance, be prepared to replace any plants that are rejected by the Owner's Representative because of physical damage to the plant.
11. Do not remove container-grown stock from containers before time of planting.
12. Be prepared to replace plants which are rejected by the Owner's Representative for the following reasons:

    a. Trunk bark damage caused by sunburn,
    b. Trunk bark wounds caused by rubbing stakes or ties,
    c. Trunk bark damage caused by ties that have girdled the tree,
    d. Tree head development that is lopsided and not symmetrical in form,
    e. Tree branches that cross or touch,
    f. Tree branches with double leaders (unless multi-trunk trees are specified).

13. Stake shrubs with one-inch by one-inch by eighteen-inch (1"x1"x18") stakes in such manner that the stakes are not visible, and tie to upright position if they lean and/or are not growing in a vertical position.
14. Furnish quantities necessary to complete the work as shown on the Drawings and, if

necessary, make up for any discrepancies in the quantities given in the Plant List at no additional cost to Owner.

G. Decomposed Granite with Binder Mock-up:

1. Install 4 ft wide x 10 ft long mock-up of decomposed granite with Stabilizer additive at location as directed by owner's representative for review and acceptance prior to placement of decomposed granite.

H. Comply with the requirements of Section 01 77 00 – Closeout Procedures.

1.04 INSPECTION REQUIREMENTS

A. Landscape Architect reserves the right to examine and reject plant material both at place of growth and at site, before and after planting, for compliance with requirements of name, variety, size, and quality.

B. Request and hold a pre-construction meeting prior to beginning the work of this Section. Parties required to be in attendance are the Landscape Contractor, Project Inspector, Owner's Representative, and Landscape Architect.

C. Obtain verification from Project Inspector for the following at the appropriate times during construction and prior to further progression of work in this Section:

1. Rough grading is to tolerances specified in Section 31 00 00 – Earthwork.
2. The placement of landscape backfill material is as specified in this Section.
3. Prior to the commencement of the work specified in this Section, the coverage and operation of the sprinkler irrigation system are as specified in Section 32 80 00 - IRRIGATION.
4. The soil amendment does not include any metal fragments. (Obtain a letter from the manufacturer stating that the material submitted for use on this project has no metal or foreign objects. Submit this letter as part of the Data Sheet submittal package [see "Submittals and Substitutions" in this Section])
5. Required Test: For each load of soil amendment delivered to the site, spread at least two cubic yards (2 cy) of material onto a paved surface approximately two inches (2") deep. Pass a magnetic rake over the material in two directions. If any metal is found, test the entire load in the same manner. Perform all testing in the presence of the Project Inspector.
6. Soil amendments, fertilizer, bark mulch and materials used for hydroseeding have been delivered to the site by the supplier, the invoices from the supplier indicate the project name and quantities delivered, and the Project Inspector has received copies of all such documents.
7. Prior to planting, amendments and conditioners have been incorporated as per pre-planting recommendations, and planting areas have been made ready to receive planting.

D. In case of failure to obtain any verification by the Project Inspector as required above, remove and replace work as necessary to obtain the verification at no additional cost to the Owner.

E. Beginning of Maintenance Period: Verify all work is complete, then request and hold a meeting to include the Landscape Architect, Project Inspector, Architect and Owner's Representative for authorization to begin the landscape maintenance period.

F. End of Maintenance: Verify that all work is complete and acceptable, and that the maintenance has been completed per specifications; and continue to provide landscape maintenance until the Owner's Representative has accepted the work.

1.05 PROJECT/SITE CONDITIONS

A. Provide protection for persons and property throughout progress of work. Use temporary barricades as required. Proceed with work in such manner as to minimize spread of dust and flying particles and to provide safe working conditions for personnel. Store materials and equipment where directed.

B. Existing Construction: Execute work in an orderly and careful manner to protect paving, work of other trades, and other improvements.

C. Existing Utilities: Provide protection for existing utilities within construction area. At no additional cost to Owner, repair any damages to utility lines that occur as a result of this work.

D. Landscaping: Protect landscape work and materials from damage due to landscape operations, operations by other contractors and trades, and trespassers. Maintain protection during installation and maintenance periods.

E. Paving: Maintain cleanliness of paving areas and other public areas used by equipment, and immediately remove spillage; remove rubbish, debris, and other material resulting from landscaping work, leaving site in a safe and clean condition.

F. Planting Schedule / Environmental Requirements

1. Install, establish, and maintain all lawn areas for a minimum of ninety (90) days prior to date of substantial completion. Coordinate schedule with other work and overall project schedule. Failure to install lawn areas by this date shall result in assessment of liquidated damages.
2. Proceed with work in an orderly and timely manner to complete installation of landscaping within contract limits.
3. Planting Season Limits: Do not plant when grounds are wet or temperature is below 25° F. Do not proceed with any soil preparation and fertilization if all planting cannot be completed within Planting Season Limit.

1.06 WARRANTY

A. The guarantee period for lawn and plant material shall be the duration of the landscape maintenance period, from commencement until final acceptance of the work of this Section. See Division 01 for other applicable guarantee requirements.

B. During the guarantee period, repair and/or replace plants and lawn not in satisfactory growing condition, as determined by Owner's Representative, without additional cost to Owner. Plants are to be replaced as per Section 32 01 90 – Landscape Maintenance.

1.07 MAINTENANCE

A. Refer to Section 32 01 90 – Landscape Maintenance

PART 2 - PRODUCTS

2.01 MATERIALS

A. Use material in new and perfect condition as specified. Any deviations or substitutions from the Specification and Drawings must first be approved by Owner's Representative in writing prior to use.

B. Topsoil: Fertile; friable; natural loam surface soil; reasonably free of subsoil, clay lumps, brush, weeds and other litter; and free of roots, stumps, stones/rocks, and other extraneous or toxic matter harmful to plant growth.

C. Organic Garden Soil: Justin's Mix, available from Cascade Rock Inc., (916) 383-1300; or approved equal.

D. Soil Amendment: One-percent nitrogen-impregnated bark product with a ninety-percent (90%) bark base and zero to one-quarter inch (0-1/4") particle size, or approved equivalent. Do not spread until testing requirements have been satisfied.

E. Fertilizer/Soil Conditioner: Gro-Power Plus or approved equal.

F. Fertilizer for Trees and Shrubs: Seven-gram Gro-Power Planting Tablets (12-8-8 NPK) or approved equal.

G. Vitamin B-1: "Superthrive", "Liquinox Start", "Cal-Liquid", or approved equal.

H. Bark Mulch: Untreated, shredded cedar.

I. Engineered Wood Fiber (EWF):

1. Shall be 100% virgin wood fiber as available from: South Bay Materials, San Jose, or equal.
2. Engineered wood fiber shall meet ASTM F1292-04 and ASTM F1951-99.
3. Material shall be light and dark blonde in color. Particle sizes: 3/8" – 2".

J. Tree-staking System: As indicated on Drawings.

K. Pre-Emergent Weed Control: Oxadiazon, "Treeflan", "Ronstar 2G", "Surflan" (Elano Products Company), or approved equal.

L. Decomposed Granite:

1. Reddish-brown in color.
2. A mixture of fines to three-eighths inch (3/8”) size particles with no clods.
3. Free of vegetation, other soils, debris and rocks, and of such nature that it can be compacted readily under watering and rolling.

M. Decomposed Granite Binder: Shall be Stabilizer by Stabilizer Solutions.

N. Nonwoven Geotextile Filter Fabric: Polypropylene or polyester fabric, three ounces per square yard (3 oz/sq. yd.) (101 g./sq. m.) minimum, composed of fibers formed into a stable network so that fibers retain their relative positions. Fabric shall be inert to biological degradation and resistant to naturally-encountered chemicals, alkalis, and acids.

O. Nursery Plant Stock:

1. As indicated on Drawings. Do not remove container-grown stock from containers until planting time. Plants shall be true to name.
2. Healthy, shapely, well-rooted, not pot-bound, free from insect pests or plant diseases and properly "hardened off" before planting. Replace plants that are not alive or are not in satisfactory growing condition, as determined by the Landscape Architect, without additional cost to Owner. The Landscape Architect may reject plants before and/or after planting.
3. Labeled. Label at least one tree and one shrub of each species with a securely-attached, waterproof tag bearing legible designation of botanical and common name.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine the site, verify grade elevations, and observe conditions under which work is to be performed. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to the Owner’s Representative.

B. Proceed with complete landscape work as rapidly as portions of the site become available, working within seasonal limitations for each kind of landscape work required.

C. Determine location of underground utilities and perform work in a manner which will avoid possible damage. Hand-excavate, as required, to minimize possibility of damage to underground utilities. Maintain grade stakes set by others until removal is mutually agreed upon by parties concerned.

D. When conditions detrimental to sod or plant growth are encountered, such as rubble fill, adverse drainage condition, or other obstructions, notify the Owner’s Representative before planting.

3.02 PREPARATION

A. Soil Testing

1. Coordinate soil testing in an expeditious and timely manner as required for on-site topsoil materials. Contract with a soil laboratory and include cost of sampling and testing in contract price. Take one (1) sample for every 5,000 square feet of landscape area up to a maximum of six (6) samples under the direction of and in the presence of the Owner's Representative.
2. Submit each sample, according to the quantity of soil required by testing laboratory, to a competent laboratory approved by the Owner's Representative.
3. Provide analysis of soil samples for pH, salinity, ammonia, phosphate, potassium, calcium, magnesium, boron, and sodium levels. Provide appraisal of chemical properties, including particle size determination, and recommendations for types and quantities of amendments and fertilizers.

B. Clearing of Vegetation:

1. If live perennial weeds exist on site at the beginning of work, spray with a non-selective systemic contact herbicide as recommended and applied by an approved licensed landscape pest control advisor and applicator. Leave sprayed plants intact for at least 15 days.
2. Clear and remove existing weeds by mowing or grubbing off all plant parts at least one-quarter inch (¼") inch below surface of soil over entire areas to be planted.

C. Soil preparation:

1. Loosen soil in all planting areas, and on slopes flatter than 3:1 gradient, to a depth of six to eight inches (6" - 8") below finish grade. All debris, foreign matter, and stones shall be removed prior to the placing of any fertilizers or conditioners. Soil preparation is for all shrub planting beds, lawn hydroseeded areas and sodded lawn areas.
2. Conduct the required soil tests and instruct the lab to include a minimum of the following soil improvements in the recommendation on the soils report.

    a. Soil Amendment: Two cubic yards (2 cy) per 1,000 square feet.
    b. Gro-Power Plus: One hundred fifty pounds (150 lbs) per 1,000 square feet.
    c. If the lab recommends less than six cubic yards (6 cy) of soil amendment, the excess bid amount shall be applied to the cost of any additional recommended soil improvements, or returned to the Owner as a credit

3. Apply amendments as follows, using rates recommended by the soils testing laboratory (the rates of amendments shown below are for bidding purposes only):

    a. Fertilizer/Soil Conditioner: Broadcast 150 pounds of Gro Power Plus per 1,000 square feet in all planting areas and rototill to a depth of six to eight inches (6" - 8"). Remove from the site any rock and debris brought to the surface by cultivations. "Cultipack" all areas to receive sod or hydroseed.
    b. Apply soil amendment to all planting areas at the rate of six cubic yards (6 cy) per 1,000 sf and rototill into the top six to eight inches (6" – 8").

4. Upon completion of finish grading, request a review and obtain approval of Landscape

Architect prior to commencement of planting or hydroseeding.

D. Finish Grading for all Planting areas

1. Refer to Earthwork Specification Section for Rough Grading.
2. Grade to elevations and contours shown on Drawings. Fill low spots with landscape backfill material and grade to surface drain in manner indicated on Drawings.
3. Finish-grade so that the entire area within the contract lines has a natural and pleasing appearance as specified and as directed by Landscape Architect.
4. Adjust sprinkler heads flush to finish grade in preparation to receive hydroseeding or one-half inch above finish grade in preparation to receive sod. Reset sprinkler heads flush to grade after turf has germinated.
5. Flag the sprinkler heads and valve markers.

E. Planting Pits for Trees:

1. Excavate pits with vertical sides and with bottom of excavation slightly raised at center to provide proper drainage.
2. Set container-grown stock in center of pit on earth pedestal. Separate roots and/or prune roots as directed by Landscape Architect. In hot weather, pre-wet pit. Loosen outside roots from sides and bottom of root ball. When set, place additional backfill around base and sides of root ball. Work each layer to settle backfill and eliminate voids and air pockets. Water after placing final layer of backfill.
3. Loosen hard subsoil in bottom of excavation. Extend excavation as required to insure proper drainage from plant pits.
4. Fill excavated planting pits with water to half the depth of pit. Pits should drain within four hours (4 hrs). If planting pits do not drain, notify Project Inspector immediately. Do not proceed with planting until Landscape Architect has resolved a method to provide drainage.

F. Planting Pits for Shrubs/Groundcover:

1. Excavate pits and trenches with vertical sides and with bottom of excavation slightly raised at center to provide proper drainage.
2. Loosen hard subsoil in bottom of excavation. Extend excavation as required to insure proper drainage from plant pits.
3. Fill excavated planting pits with water to half the depth of pit. Pits should drain within four hours (4 hrs). If planting pits do not drain, notify Project Inspector immediately. Do not proceed with planting until Landscape Architect has resolved a method to provide drainage.

3.03 INSTALLATION

A. Trees, Shrubs, and Groundcover:

1. Lay out individual tree and shrub locations and areas for multiple plantings. Stake the locations, outline the areas, and secure the Owner’s Representative's acceptance before

beginning the planting work. Make minor adjustments as requested.

2. Scarify root ball prior to planting. Plant in holes twice the diameter of the root ball and to a depth equal to the container's height. Place the shrub and/or groundcover so the top of the root ball is one inch (1") higher than the surrounding grade; place the tree so that the crown of the trunk is two inches (2") higher than the surrounding grade. Set container-grown stock in center of pit. In hot weather, pre-wet the pit. When set, place additional backfill around base and sides of root ball. Work each layer to settle backfill and eliminate voids and air pockets. Thoroughly compact lower half of backfill in plant pit. See staking or guying detail. Water after planting. Provide a berm or watering basin for each tree. Add Vitamin B-1, in the proper solution as recommended by the manufacturer, to the second watering of the basin.
3. Place fertilizer planting tablets in root zone and alongside each plant. Follow manufacturer's instructions for number of tablets to use for each container size.
4. See Drawings for additional information.
5. Grooming and Staking of Trees:

    a. Prune, thin-out and shape trees in accordance with standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise directed by Landscape Architect, do not cut tree leaders, and remove only injured or dead branches from flowering trees.
    b. Paint cuts over one-half inch (½") in size with standard tree paint or compound, covering exposed, living tissue. Use paint that is waterproof, antiseptic, adhesive, elastic and free of kerosene, coal tar, creosote, and other substances harmful to plants. Do not use shellac.
    c. Stake or guy trees immediately after planting, as indicated on Drawings.

6. Grooming of Shrubs:

    a. Prune, thin-out and shape shrubs in accordance with standard horticultural practice. Prune shrubs to retain natural character and to accomplish their use in landscape design. The required plant size is its size after pruning.
    b. Remove and replace excessively pruned or malformed new plants resulting from improper pruning.

7. Request review by the Landscape Architect after locating, but prior to planting all trees. Under the direction of the Landscape Architect, make slight adjustments to plant material location as necessary to reflect original intention of Drawings.

B. Weed Control

1. Apply pre-emergent weed control to all planting areas (except lawn) after completion of all planting and one complete watering. Follow manufacturer's directions. To prevent washing away of weed control, do not over-water after its application. Do not allow any weed control into lawn areas. Treat any existing noxious weeds, such as Johnson grass, with Roundup in successive treatments until all roots are destroyed, then remove all grass and roots. Notify Owner's Representative of time of installation for verification of application.

C. Bark Mulch

1. Apply mulch at the rate of three inches (3") deep to all planting areas, exclusive of lawn, after the planting and weed control are completed. Twelve inches (12”) from planter edges, taper full depth of mulch to meet adjacent grades. Do not place mulch within three inches (3”) of trunk or stems.

D. Decomposed Granite

1. Prepare all areas to receive decomposed granite, and treat sub-grade with weed control.
2. Install a two-inch (2") lift, and wet and roll to compact to ninety percent (90%).
3. Install the remaining material to achieve the required thickness when it is wet and rolled.
4. Remove all weed grass and re-compact the surface by the end of the landscape maintenance period.

E. Decomposed Granite with Binder

1. General: Prepare all areas to receive decomposed granite, and treat sub-grade with weed control.
2. Placement:

    a. Do not install during rainy conditions or below 40 degree Fahrenheit and falling.
    b. After pre-blending, place the Stabilized decomposed granite on prepared sub-grade. Level to desired grade and cross section.
    c. Water heavily for full-depth moisture penetration of the Stabilized pathway profile, 25 to 45 gallons of water per 1-ton must be applied. During water application randomly test for depth using a probing device, which reaches full depth.

3. Compaction:

    a. Upon thorough moisture penetration, compact aggregate screening to 85% relative compaction by equipment such as; a 2 to 4-ton double drum roller or a 1,000-lb. single drum roller. The roller size will depend on the depth of the pathway. DO NOT use a vibratory plate compactor or vibration function on roller as vibration separates large aggregate particles. Do not begin compaction for 6 hours after placement and up to 48 hours.
    b. If surface aggregate dries significantly quicker than subsurface material, lightly mist surface before compaction.
    c. Take care in compacting decomposed granite when adjacent to planting and irrigation systems. Hand tamping with an 8” or 10” hand tamp recommended.

4. Inspection:

    a. Finished surface of pathway shall be smooth, uniform and solid. There shall be no evidence of chipping or cracking. Cured and compacted pathway shall be firm throughout profile with no spongy areas. Loose material will not be present on

the surface after installation, but may appear after use and according to environmental conditions. Pathway should remain stable underneath the loose granite on top. Any significant irregularities in path surface shall be repaired to the uniformity of entire installation.

5. Repairs:

   a. Excavate damaged area to the depth of the stabilized decomposed granite and square off sidewalls.
   b. If area is dry, moisten damaged portion lightly.
   c. Pre-blend the dry required amount of Stabilizer powder with the proper amount of decomposed granite in a concrete mixer.
   d. Add water the pre-blended decomposed granite and stabilizer. Thoroughly moisten mix with 25 to 45 gallons per 1-ton of pre-blended material or to approximately 10% moisture content.
   e. Apply moistened pre-blended decomposed granite to excavated area to finish grade.
   f. Compact with an 8”-10” hand tamp or 250 to 300-pound roller. Keep traffic off area for 12 to 48 hours after repair has been completed.

6. Upon end of landscape maintenance period, all weed/grass shall have been removed and surface re-compacted.

3.04 CLEANING

A. During construction, keep the site free of rubbish and debris, and clean up the site promptly when notified to do so. Take care to prevent spillage on streets from hauling and immediately clean up any such spillage and/or debris deposited on streets due to the work of this Section.

B. During all phases of the construction work, take all precautions to abate dust nuisance by clean-up, sweeping, sprinkling with water, or other means as necessary.

3.05 QUALITY CONTROL

A. Pre-maintenance review - At completion of this Section, work shall be reviewed to check conformance with Construction Documents. Acceptance shall mark beginning of the specified maintenance period. If acceptance is not given, a punch-list of items requiring attention will be issued to the contractor. One more review will be allowed after contractor certifies in writing that the punch-list has been completed. Punch-list shall be completed to the satisfaction of the District's Representative prior to commencement of the Specified Maintenance Period.

B. Refer to Section 32 01 90 – Landscape Maintenance.

END OF SECTION

SECTION 33 00 00

SITE UTILITIES

PART 1 - GENERAL

1.01 SUMMARY

A. SECTION INCLUDES:
1. Domestic water piping system.
2. Fire protection piping systems.
3. Sewer piping system.
4. Other water and sewer items that may be specified or shown on the drawings.

B. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 01 50 00, Construction Facilities and Temporary Controls.
3. Section 31 13 16 Tree Protection.
4. Section 31 23 33, Trenching and Backfilling.
5. Section 32 16 00, Site Concrete.
6. Section 33 00 00, Earthwork.

1.02 REFERENCES AND STANDARDS

A. ANSI/ASTM D698-00 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb (2.49 Kg) Rammer and 12 inch (304.8 mm) Drop.

B. ANSI/ASTM D1556-00 - Test Method for Density of Soil in Place by the Sand-Cone Method.

C. ANSI/ASTM D1557-02 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb. (4.54 Kg) Rammer and 18 inch (457 mm) Drop.

D. ANSI/ASTM D 3017-05 Test Methods for Moisture Content of Soils and Soil-Aggregate Mixture by Nuclear Methods (Shallow Depth).

E. ANSI/ASTM D 4318-05 Test Method for Liquid Limit, Plastic Limit, and Plasticity Limit.

F. CALTRANS Standard Specifications.

G. CAL-OSHA, Title 8, Section 1590 (e).

H. Any work within the street, highway or right-of-way shall be performed in accordance with the requirement of the governmental agencies having jurisdiction, and shall not begin until all of those governing authorities have been notified.

I. NFPA 13, 24 and 25, latest editions.

J. California State Health and Safety Code Section 116875, Lead Free Public Water Systems.

K. California Plumbing Code, latest edition.

1.03 SUBMITTALS

A. Refer to Section 01 33 00.

B. Manufacturer's Data: Submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, published warranty or guarantee, installation instructions, and maintenance instructions.

C. Provide sieve analysis from accredited testing lab on pipe bedding material. Analysis shall have a current date not older than project contract signing date.

D. Substitution: Provide all data of proposed material being submitted as a substitution. Provide comparison with specified product data and identify all differences. Failure to provide comparison will be reason for rejection.

1.04 QUALITY ASSURANCE

A. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the drawings to be salvaged and re-used.

1. Sun damaged or discolored PVC pipe will be rejected.

B. All materials, components, assemblies, workmanship and installation are to be observed by the Owner's Inspector of Record. Work not so inspected is subject to uncovering and replacement.

C. The representatives of the Owner’s testing lab will not act as supervisor of construction, nor will they direct construction operations. Neither the presence of the Owner’s testing lab representatives nor the testing by the Owner’s testing lab shall excuse the contractors or subcontractors for defects or deficiencies discovered in their work during or following completion of the project. Correcting inadequate compaction is the sole responsibility of the contractor.

D. Contractor shall be solely responsible for all subgrades built. Any repairs resulting from inadequate compaction or incorrect grades will be the responsibility of the contractor.

E. Per 2016 NFPA 13 provide Contractor's material and test certificate to the Owner, Architect, Project Inspector and Local Fire Authority.

1.05 FEES, PERMITS, AND UTILITY SERVICES

A. Obtain and pay for permits and service charges required for installation of Work. Arrange for required inspections and secure written approvals from authorities having jurisdiction.

B. Upon completion of work within right-of-way, provide copies of written final approval to the Architect.

1.06 DELIVERY, STORAGE AND HANDLING

A. Transport, store and handle in strict accord with the local jurisdiction.

B. Make delivery to job when notified by Contractor verifying that the job is ready to receive the work of this Section and that arrangements have been made to properly store, handle and protect such materials and work.

1.07 PROJECT CONDITIONS

A. Existing civil, mechanical and electrical improvements are shown on respective site plans to the extent known. Should the Contractor encounter any deviation between actual conditions and those shown, he is to immediately notify the Architect before continuing work.

B. Contractor shall acquaint himself with all site conditions. If unknown active utilities are encountered during work, notify Architect promptly for instructions. Failure to notify will make Contractor liable for damage to these utilities arising from Contractor's operations subsequent to discovery of such unknown active utilities.

1.08 WARRANTY

A. Refer to General Conditions and Section 01 78 36.

1.09 PROTECTION

A. Adequate protection measures shall be provided to protect workmen and passers-by on and off the site. Adjacent property shall be fully protected throughout the operations. Blasting will not be permitted. Prevent damage to adjoining improvements and properties both above and below grade. Restore such improvements to original condition should damage occur. Replace trees and shrubs outside building area disturbed by operations.

B. In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for working conditions at the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and shall not be limited to normal working hours.

C. Any construction review of the Contractor's performance conducted by the Geotechnical Engineer is not intended to include review of the adequacy of the Contractor's safety measures, in, on, or near the construction site.

D. Provide shoring, sheeting, sheet piles and or bracing to prevent caving, erosion or gullying of sides of excavation.

E. Surface Drainage: Provide for surface drainage during period of construction in manner to avoid

creating nuisance to adjacent areas. The contractor shall make a reasonable effort on a daily basis to provide pumps and all equipment necessary to keep all excavations and the site free from water during entire progress of work, regardless of cause, source, or nature of water.

F. Adjacent streets and sidewalks shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.

G. The site and adjacent influenced areas shall be watered as required to suppress dust nuisance. Dust control measures shall be in accordance with the local jurisdiction.

H. Trees: Carefully protect existing trees that are to remain. Provide temporary irrigation as necessary to maintain health of trees.

1.10 SEASONAL LIMITS

A. No fill material shall be placed, spread or rolled during unfavorable weather conditions. When work is interrupted by rains, fill operations shall not be resumed until field tests indicate that moisture content and density of fill are satisfactory.

1.11 RECORD DRAWINGS

A. Keep a daily record of all pipe placed in ground, verified by Project Inspector.

B. Upon completion of this Contract, furnish one tracing showing all outside utility lines, piping, etc., installed under this Contract. Locate and dimension all work with reference to permanent landmarks.

C. All symbols and designations used in preparing "RECORD" drawings shall match those used in Contract drawings.

D. Properly identify on as-builts and provide dimensions for all stubs for future connections. Provide concrete markers 6” dia. 12” deep, flush with finish grade at the ends of all stubbed pipes.

PART 2 – PRODUCTS

2.01 MATERIALS - GENERAL

A. Provide each item listed herein or shown on drawings of quality noted or approved equal. All material shall be new, full weight, standard in all respects and in first-class condition. Insofar as possible, all materials used shall be of same brand or manufacture throughout for each class of material or equipment. Materials shall be of domestic manufacture and shall be tested within Continental United States.

B. Grade or quality of materials desired is indicated by trade names or catalog numbers stated herein.

C. Dimensions, sizes, and capacities shown are minimum and shall not be changed without permission of Architect.

D. All materials in this section used for any public water system or domestic water for human

consumption shall be lead free.

1. For the purposes of this section, “lead free” means not more than 0.2 percent lead when used with respect to solder and flux and not more than 8 percent when used with respect to pipes and pipe fittings.
2. All pipe, pipe or plumbing fitting or fixtures, solder, or flux shall be certified by an independent American National Standards Institute (ANSI) accredited third party, including, but not limited to, NSF International, as being in compliance with this section.

E. All materials used for fire system piping shall be UL and FM approved.

2.02 VALVE BOXES

A. Provide at each valve 3” or smaller in size in ground an Oldcastle B1017 H20 rated valve box.
B. Provide at each valve 4” or greater in size in ground a Christy, Brooks, or equal to Christy G05CT.
C. All valve boxes shall have a cover marked for service, domestic water shall be marked “Water” and fire supply shall be marked “Fire”. Furnish extension handles for each size square nut valve, and provide “fork” handle for each size of “wheel handle” valve as required. Do not locate valve boxes in walk, or covered passages, curbs, or curb & gutters, unless necessary. If valve location is within concrete or asphalt paved surface valve box shall be as detailed on plans for such condition. Provide valve box extensions as required to set bottom of valve box to bottom of piping in which valve is installed. Provide Owner with set of special wrenches and/or tools as required for operation of valves.

2.03 PIPES AND FITTINGS

A. Sanitary Sewer: PVC sewer pipe and fittings with Ring-Tite joints, ASTM D3034 SDR35.

B. Domestic water Lines 3 1/2” and smaller: Type K copper tubing, hard temper, with wrought copper fittings.

C. Water lines 4” and larger: AWWA C-900 Class 150/DR18 with rubber gasket joints.

D. Fire lines 4” and larger: AWWA C-900 Class 200/DR14 with rubber gasket joints.

E. Solder: Lead Free. 95/5; 95% Tin / 5% Antimony.

F. Ductile Iron Pipe; Class 350, Cement Lined

G. Ductile Iron Pipe Fittings; AWWA C110, C153, Ebba Iron, Star Romac, Sigma, or approved equal.

H. Mechanical Fitting Bolts; Bolts and nuts shall be carbon steel with a minimum 60,000 psi tensile strength conforming to ASTM A 307, Grade A. Bolts shall be standard ANSI B1.1 Class 2A course threads. Nuts shall conform to ASTM A 563 and be standard ANSI B1.1, Class 2A course thread. All bolts and nuts shall be zinc coated.

I. Fasteners Anti-Rust Coatings; After assembly, coat all fasteners with an Asphaltic Bituminous coatings conforming to latest edition NFPA 24.

J. Ductile Iron Pipe Wrap; 8 mil polyethylene pipe wrap conforming to ANSI/AWWA C105/A21.5 standards.

K. Pipe Insulation; Pipe exposed to atmospheric conditions ½" thru 4" NPT; Johns Manville rigid fiberglass insulation, Micro Lok HP; Owens Corning Fiberglas SSL II; Conforming to ASTM C 612, Type 1A or type 1B.

L. Aluminum field applied pipe insulation jacket; comply with ASTM B209, ASTM C1729, ASTM C1371 Manufacturers; Childers Metals; ITW Insulation Systems Aluminum Jacketing; or an approved equal.

1. Finish shall be flat mill finish
2. Factory Fabricated Fitting Covers; 45 and 90 degree elbows, tee's, valve covers, end caps, unions, shall be of the same thickness and finish of jacket.
3. The fittings shall be composed of 2-pieces
4. Adhesives; per the manufacturers requirements
5. Joint Sealant; shall be silicone, and shall be aluminum in color.

M. Sewer Forced Main; HDPE, DR 11, color gray with green stripe by JM Eagle or approved equal.

2.04 SANITARY SEWER MANHOLES

A. Shall be constructed as shown on plan details.

2.05 CLEANOUTS

A. Cleanouts of same diameter as pipe up to 8" in size shall be installed in all horizontal soil and waste lines where indicated and at all points of change in direction. Cleanouts shall be located not less than 18" from building so as to provide sufficient space for rodding. No horizontal run over 100 feet shall be without cleanout whether shown on drawings or not.

B. All cleanout boxes shall be traffic rated with labeled lid, Christy G05CT or approved equal. Lid shall be vandal proof with stainless steel screws

2.06 UNIONS

A. Furnish and install one union at each threaded or soldered connection to equipment and 2 unions, one on each side of valves on pipes ½" to 3".

B. Locate unions so that piping can be easily disconnected for removal of equipment or valve. Provide type specified in following schedule:

<u>Type of Pipe Union</u>

Steel Pipe:	150 lb. Screwed malleable ground joint, brass, brass-to-iron seat, black or galvanized to match pipe.
Copper tubing:	Brass ground joint with sweat connections.

PVC Sch 80 pipe: PVC union, FIPT X FIPT

2.07 VALVES

A. Provide valves as shown and other valves necessary to segregate branches or units. Furnish valves suitable for service intended. Valves shall be properly packed and lubricated. Valves shall be non-rising stem. Place unions adjacent to each threaded or sweat fitting valve. Install valves with bonnets vertical. All valves shall be lead free.

B. Valves ½” thru 2”; shall be made of bronze, full size of pipe and lead free. Nibco S-113-FL Series; American G-300 Series; Matco 511 FL Series; Apollo 102T-FL Series. Brass valves of brass parts within valves will not be accepted.

C. Valves, 2 ½” thru 3” shall be class 150; Shall be made of bronze, full size of pipe; Jenkins Fig. 2310 J; Lunkinheimer Fig. 2153; Crane Fig. 437; Stockham Fig. B-128.

D. Valves, Flanged; 4” thru 12” Ductile Iron Resilient Wedge Gate Valve; Nibco F 609 RW; American 2500 Series; Kennedy 8561; Mueller 2360 Series.

2.07 FIRE HYDRANTS

A. Clow 960 Painted or per Local Jurisdiction Requirements, or an approved equal, 36" minimum bury, two 2-1/2" hose nozzles, one 4-1/2" pumper nozzle, and break-off check valve, Clow LBI 400A or approved equal . Hydrant shall conform to, and installation shall comply with the Local Jurisdiction.

2.08 POST INDICATOR

A. Post Indicator shall be Mueller Co. A-20806 (adjustable) with tamper switch or an approved equal.

2.09 BACKFLOW PREVENTERS
Double Check Valve, Double Check Detector and Reduced Pressure Backflow Preventers

A. Backflow preventers shall be as approved by the local agency and by the State of California’s Department of Health Services most recent list of approved reduced pressure backflow preventers. All approved backflow preventers shall have ductile iron bodies.

1. Provide Backflow preventer blankets with locking device. Weatherguard R-30 insulated or equal.
2. Provide ball valve at all test ports with brass plug in valve.
3. Provide a minimum of 2 valve tamper switches on fire prevention Backflows.

2.10 TAPPING SLEEVE

A. Shall be used on pipe sizes 6” thru 12” and shall be made with stainless steel material including stainless steel bolts. Flanges shall be ductile iron or high carbon steel. Gaskets shall seal full circumference of pipe. Shall be manufactured for operating pressure of 200 psi, and shall pass test pressure of 300 psi. Romac SST series; Smithblair 662; Mueller H304; Ford “FAST” tapping sleeve.

2.11 SERVICE SADDLES

A. Shall be used on pipe size 2” thru 4”. Body shall be made from ductile iron with epoxy coating or bronze. Cascade Style CSC-1; A.Y. McDonald model 3891 AWWA/3892 FNPT; Smith-Blair #317; Ford S70, S71, S90, (style B).

2.11 TRACER WIRE

A. No. 10 THW solid copper wire. Solder all joints

PART 3 - EXECUTION

3.01 DRAWINGS AND COORDINATION

A. General arrangement and location of piping, etc., are shown on Drawings or herein specified. Install work in accord therewith, except for minor changes that may be necessary on account of other work or existing conditions. Before excavation, carefully examine other work that may conflict with this work. Install this work in harmony with other craft and at proper time to avoid delay of work.

B. Verify invert elevations at points of connection to existing systems prior to any excavation. If invert elevations differ from that shown on drawings, notify Architect immediately.

C. In advance of construction, work out minor changes if conflicts occur with electrical or mechanical. Relocate services to suit actual conditions and work of other trades to avoid conflict therewith. Any adjustments or additional fittings to make adjustments shall not be cause for additional costs to the owner.

D. Execute any work or apparatus shown on drawings and not mentioned in specifications, or vice versa. Omission from Drawings or Specifications of any minor details of construction, installation, materials, or essential specialties does not relieve Contractor of furnishing same in place complete.

E. Graded pipes shall take precedence. If conflict should occur while placing the domestic water and fire service piping, the contractor shall provide any and all fittings necessary to route the water lines over or under such conflicting pipes at no additional costs to the owner.

3.02 ACCESS

A. Continuously check for clearance and accessibility of equipment or materials specified herein to be placed. No allowance of any kind shall be made for negligence on part of Contractor to foresee means of installing his equipment or materials into proper position.

3.03 EXCAVATING AND BACKFILLING

A. Excavation and Bedding:

1. General: Trench straight and true to line and grade with bottom smooth and free of irregularities

or rock points. Trench width to be a minimum of 12" wider than outside diameter of pipe. Follow manufacturer's recommendations for use of each kind and type of pipe.

2. Bedding: Provide a bedding as noted on drawing details for the full length of the pipe. Bedding shall have a minimum thickness beneath the pipe of 4" or 1/8 the outside diameter of the pipe, which ever is greater. Provide bell holes and depressions for pipe joints only of size required to properly make joint.

B. Laying of Pipe:

1. General: Inspect pipe prior to placing. Sun damaged pipe will be rejected. Set aside any defective or damaged material. Do not place pipe in water nor place pipe when trenches or weather are unsuitable. Lay pipe bell upgrade, true to line and grade.
   a. Sewer pipe shall be laid in strict conformity to the prescribed line and grade, with grade bars set and each pipe length checked to the grade line. Three consecutive points on the same rate of slope shall be used at all times to detect any variation from a straight grade. In any case of discrepancy, work shall be stopped and the discrepancy immediately reported to the Owner’s Representatives. In addition, when requested by the Owner's Representative, a string line shall be used in the bottom of the trench to insure a straight alignment of the sewer pipe between manholes. The maximum deviation from grade shall not be in excess of 1/4 inch. In returning the pipe to grade, no more than ¼” depression shall result.
   b. The Contractor shall expose the end of existing pipe to be extended, for verification of alignment and elevation, prior to trenching for any pipe which may be affected. All costs of such excavation and backfill shall be included in the price paid for the various items of work.
   c. A temporary plug, mechanical type shall be installed on sewer pipe at the point of connection to existing facilities. If connecting to a public facility the plug shall conform to the requirements of the local jurisdiction. This plug shall remain in place until the completion of the balling and flushing operation.
2. Bell and Spigot Joints: Lubricate inside of bells and outside of spigots with soap solution. Wedge joints tight. Bell of bell and spigot pipe to be pointed upgrade.

C. Backfilling:

1. General: Do not start backfill operations until required testing has been accomplished.
2. Compaction and Grading: Remainder of backfill shall be in accordance with Section 31 23 33 – TRENCHING AND BACKFILLING.
3. If trenching in area previously lime or cement treated backfill top of trench section, same depth as lime or cement treatment with Class 2 Aggregate Base compacted to 95% minimum relative compaction.

3.04 INSTALLATION OF WATER PIPING

A. The contractor shall be responsible for determining the installed depth of all water piping, based on surfaces grades and minimum required depth of cover.

B. Immediately cap or plug ends of, and opening in, pipe and fittings to exclude dirt until final connections made. Use reducing fittings where any change in pipe size occurs. Bushings shall not be used.

C. General: Should existing conditions or other work prevent the running of pipes or the setting of equipment at the points indicated by drawings, changes as authorized by the Architect shall be made without additional cost to the Owner.

D. All bolts used on mechanical fittings shall be thoroughly coated with an asphaltic bituminous coating conforming to 2016 NFPA 24, 10.4.1.1.

E. All buried metal shall be incased with 8 mil polyethylene wrap so that no soil is in contact with metal. Ends of polyethylene wrap shall be taped to provide seal with pipe.

F. Do not install water lines in same trench with non-metallic sewer lines unless bottom of water pipe at all points is at least 12" above top of sewer line and water line is placed on solid shelf excavated at one side of common trench with a minimum of 12 inch horizontal separation.

G. Under no circumstance shall a fitting be located directly under a structural footing without prior approval from the Architect.

H. In locations where existing domestic pipe is rerouted, the new pipe shall be assembled using restrained fittings at all joints including factory pipe joints. Tapped restrained blind flanges shall be temporarily installed at each end of the assembled pipes until testing and chlorination is completed and approved.

3.05 CLOSING IN OF UNINSPECTED WORK

A. Do not allow or cause work installed to be covered up or enclosed before it has been inspected, tested, and approved. Should work be enclosed or covered up before it has been approved, uncover work at own expense. After it has been inspected, tested and approved, make repairs necessary to restore work of other contractors to condition in which it was found at time of cutting.

3.06 CARE AND CLEANING

A. Repair or replace broken, damaged, or otherwise defective parts, materials, and work. Leave entire work in new condition satisfactory to Architect. At completion, carefully clean and adjust equipment, fixtures and trim that are installed as part of this work. Leave systems and equipment in satisfactory new operating condition.

B. Drain and flush piping to remove grease and foreign matter.

C. Sewer piping shall be balled and flushed.

D. Clean out and remove surplus materials and debris resulting from the work, including surplus excavated material.

E. Flush fire service piping in the presence of the project inspector. Flushing shall be continued for a sufficient time as necessary to ensure all foreign material has been removed. Flow rate shall be equal to site fire flow requirements.

3.07 SEWER INTERNAL INSPECTIONS

A. Upon completion of construction and prior to final inspection, the Contractor shall clean the entire new pipeline of all dirt and debris. Any dirt or debris in previously existing pipes or ditches in the area, which resulted from the new installation, shall also be removed. Pipes shall be cleaned by the controlled balling and flushing method. Temporary plugs shall be installed and maintained during cleaning operations at points of connection to existing facilities to prevent water, dirt, and debris from entering the existing facility.

3.08 TEST OF PIPING

A. Pressure Test piping at completion of roughing-in, in accord with following schedule, and show no loss in pressure or visible leaks after minimum duration or four (4) hours at test pressures indicated.

B. Chlorination tests shall be performed after all fixtures and any required mechanical devices are installed and the entire system is complete and closed up.

C. In cases where new domestic water piping is assembled for re-routing of existing domestic water pipe , the contractor shall perform the following testing prior to connecting the new water pipe to the existing system.

1. The pipe shall be pressure tested and per the test schedule.
2. The pipe shall be pressure tested down within the trench.
3. The contractor shall dig a temporary ditch below the existing pipe to drain to a sump that is lower than the bottom of the trench and to the side of the trench. The sump shall be 30% larger than the total volume of water within the testing pipe assembly.
4. After pressure testing and chlorination has taken place and accepted, the contractor shall drain the pipe into the sump and pump the sump out as it is filling.
5. The temporary test fittings at each end of the pipe assembly shall be removed and the final restrained couplings installed.
6. The existing piping shall be cut and the water within the pipe shall drain below the pipe to the temporary sump. Pump the sump as it is being filled up. Take extreme caution not to contaminate the existing pipe with any contaminates within the trench.
7. Before making the final coupling connections, the restrained couplings at each end of the new pipe shall be thoroughly swabbed inside the fitting with a solution of chlorine mixed with water at a rate of 1part chlorine to 4 parts potable water.
8. After final connections are made, a visual inspection shall be made after fittings are wiped off. If after 1 hr, no noticeable drips are noted the pipe can be backfilled.
9. The contractor shall flush all water piping affected by chlorination until it is within acceptable levels approved by certified testing lab.

TEST SCHEDULE

System Tested	Test Pressure PSIG Test With
Public water mains	Per local jurisdiction requirements.
Private domestic water piping and fire mains serving fire hydrants:	150 Lbs. Water 4 hrs.

Fire Protection Piping from PIV to fire riser:	200 Lbs. Water pressure, 4 hrs duration with no pressure loss.
Sanitary Sewer Piping:	Sewer system shall be tested for leakage per local jurisdiction requirements.

D. Testing equipment, materials, and labor shall be furnished by contractor.

3.09 WATER SYSTEM STERILIZATION

A. Public Water Mains: Shall be flushed and disinfected per the local jurisdiction requirements

B. Clean and disinfect all site water systems connected to the domestic water systems in accordance with AWWA Standard C651 and as required by the local Building and Health Department Codes, and EPA.

1. Clean and disinfect industrial water system in addition to the domestic water system.
2. Disinfect existing piping systems as required to provide continuous disinfection upstream to existing valves. At Contractors option, valves may be provided to isolate the existing piping system from the new piping system.

C. Domestic water sterilization shall be performed by a licensed “qualified applicator” as required by CAL-EPA Pesticide Enforcement Branch for disinfecting and sterilizing drinking water.

D. Disinfecting Agent: Chlorine product that is a registered product with Cal-EPA for use in California potable water lines, such as Bacticide, CAL-EPA Registration No. 37982-20001.

E. Contractor to provide a 1” service valve connected to the system at a point within 2’-0” of its junction with the water supply line. After sterilization is complete Contractor to provide cap at valve.

F. Sterilization Procedure to be as follows:

1. Flush pipe system by opening all outlets and letting water flow through the system until clear water flows from all outlets.
2. Inject disinfecting agent to provide a minimum chlorine residual concentration of at least 50 parts per million (ppm) of free chlorine at each outlet.
3. Provide sign at all outlets which reads “Water Sterilization in Progress – Do not operate”. Remove signs at conclusion of test.
4. Close all outlets and valves, including valve connecting to water supply line and 1” service valve. Retain treated water in pipe for a minimum of twenty-four hours. Should chlorine residual at pipe extremities be less than 50 PPM at this time, pipe shall be re-chlorinated. As an option, the water systems may be filled with a water-chlorine solution containing a minimum of 200 PPM of chlorine and allowed to stand for three hours.

5. After chlorination, flush lines of chlorinated water and refill from domestic supply. Continue flushing until residual chlorine is less than or equal to 0.2 ppm, or a residual the same as that of the test water.

G. Chemical and bacteriological tests shall be conducted by a state-certified laboratory and approved by the local authorities having jurisdiction.
H. Submit written report to Health Department as required by State Regulations. Provide a copy of report to Architect prior to completion of project.
I. The costs of sterilization and laboratory testing shall be paid for by the contractor.

3.10 CLEANING

A. Refer to Section 01 74 00.

B. Upon completion of work of this Section promptly remove from the working area all scraps, debris and surplus material of this Section.

END OF SECTION

SECTION 33 40 00

SITE DRAINAGE

PART 1 - GENERAL

1.01 SUMMARY

A. SECTION INCLUDES:
1. Storm Drain piping, fittings, structures.

B. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 01 50 00, Construction Facilities and Temporary Controls.
3. Section 31 13 16, Tree Protection.
4. Section 31 23 33, Trenching and Backfilling.
5. Section 32 16 00, Site Concrete.
6. Section 33 00 00, Earthwork.

1.02 REFERENCES AND STANDARDS

A. ANSI/ASTM D698-00 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb (2.49 Kg) Rammer and 12 inch (304.8 mm) Drop.

B. ANSI/ASTM D1556-00 - Test Method for Density of Soil in Place by the Sand-Cone Method.

C. ANSI/ASTM D1557-02 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb. (4.54 Kg) Rammer and 18 inch (457 mm) Drop.

D. ANSI/ASTM D3017-05 Test Methods for Moisture Content of Soils and Soil-Aggregate Mixture by Nuclear Methods (Shallow Depth).

E. ANSI/ASTM D4318-05 Test Method for Liquid Limit, Plastic Limit, and Plasticity Limit.

F. CALTRANS Standard Specifications.

G. CAL-OSHA, Title 8, Section 1590 (e).

H. Any work within the street, highway or right-of-way shall be performed in accordance with the requirement of the governmental agencies having jurisdiction, and shall not begin until all of those governing authorities have been notified.

I. NFPA 13, 24 and 25, latest editions.

J. California State Health and Safety Code Section 116875, Lead Free Public Water Systems.

K. California Plumbing Code, latest edition.

1.03 SUBMITTALS

A. Refer to Section 01 33 00.

B. Manufacturer's Data: Submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, published warranty or guarantee, installation instructions, and maintenance instructions.

C. Provide sieve analysis from accredited testing lab on pipe bedding material. Analysis shall have a current date not older than project contract signing date.

D. Substitution: Provide all data of proposed material being submitted as a substitution. Provide comparison with specified product data and identify all differences. Failure to provide comparison will be reason for rejection.

1.04 QUALITY ASSURANCE

A. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the drawings to be salvaged and re-used.

1. Sun damaged or discolored PVC pipe will be rejected.

B. All materials, components, assemblies, workmanship and installation are to be observed by the Owner's Inspector of Record. Work not so inspected is subject to uncovering and replacement.

C. The representatives of the Owner’s testing lab will not act as supervisor of construction, nor will they direct construction operations. Neither the presence of the Owner’s testing lab representatives nor the testing by the Owner’s testing lab shall excuse the contractors or subcontractors for defects or deficiencies discovered in their work during or following completion of the project. Correcting inadequate compaction is the sole responsibility of the contractor.

D. Contractor shall be solely responsible for all subgrades built. Any repairs resulting from inadequate compaction or incorrect grades will be the responsibility of the contractor.

E. Per 2016 NFPA 13 provide Contractor's material and test certificate to the Owner, Architect, Project Inspector and Local Fire Authority.

1.05 FEES, PERMITS, AND UTILITY SERVICES

A. Obtain and pay for permits and service charges required for installation of Work. Arrange for required inspections and secure written approvals from authorities having jurisdiction.

B. Upon completion of work within right-of-way, provide copies of written final approval to the Architect.

1.06 DELIVERY, STORAGE AND HANDLING

A. Transport, store and handle in strict accord with the local jurisdiction.

B. Make delivery to job when notified by Contractor verifying that the job is ready to receive the work of this Section and that arrangements have been made to properly store, handle and protect such materials and work.

1.07 PROJECT CONDITIONS

A. Existing civil, mechanical and electrical improvements are shown on respective site plans to the extent known. Should the Contractor encounter any deviation between actual conditions and those shown, he is to immediately notify the Architect before continuing work.

B. Contractor shall acquaint himself with all site conditions. If unknown active utilities are encountered during work, notify Architect promptly for instructions. Failure to notify will make Contractor liable for damage to these utilities arising from Contractor's operations subsequent to discovery of such unknown active utilities.

1.08 WARRANTY

A. Refer to General Conditions and Section 01 78 36.

1.09 PROTECTION

A. Adequate protection measures shall be provided to protect workmen and passers-by on and off the site. Adjacent property shall be fully protected throughout the operations. Blasting will not be permitted. Prevent damage to adjoining improvements and properties both above and below grade. Restore such improvements to original condition should damage occur. Replace trees and shrubs outside building area disturbed by operations.

B. In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for working conditions at the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and shall not be limited to normal working hours.

C. Any construction review of the Contractor's performance conducted by the Geotechnical Engineer is not intended to include review of the adequacy of the Contractor's safety measures, in, on, or near the construction site.

D. Provide shoring, sheeting, sheet piles and or bracing to prevent caving, erosion or gullying of sides of excavation.

E. Surface Drainage: Provide for surface drainage during period of construction in manner to avoid creating nuisance to adjacent areas. The contractor shall make a reasonable effort on a daily basis to provide pumps and all equipment necessary to keep all excavations and the site free from water during entire progress of work, regardless of cause, source, or nature of water.

F. Adjacent streets and sidewalks shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.

G. The site and adjacent influenced areas shall be watered as required to suppress dust nuisance. Dust control measures shall be in accordance with the local jurisdiction.

H. Trees: Carefully protect existing trees that are to remain. Provide temporary irrigation as necessary to maintain health of trees.

1.10 SEASONAL LIMITS

A. No fill material shall be placed, spread or rolled during unfavorable weather conditions. When work is interrupted by rains, fill operations shall not be resumed until field tests indicate that moisture content and density of fill are satisfactory.

1.11 RECORD DRAWINGS

A. Keep a daily record of all pipe placed in ground, verified by Project Inspector.

B. Upon completion of this Contract, furnish one tracing showing all outside utility lines, piping, etc., installed under this Contract. Locate and dimension all work with reference to permanent landmarks.

C. All symbols and designations used in preparing "RECORD" drawings shall match those used in Contract drawings.

D. Properly identify on as-builts and provide dimensions for all stubs for future connections. Provide concrete markers 6” dia. 12” deep, flush with finish grade at the ends of all stubbed pipes.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Pipe: Use one of the following, unless noted on the Drawings otherwise.

1. Polyvinyl Chloride Pipe (PVC): SDR35 conforming to ASTM D3034 with elastomeric joints conforming to ASTM D3212. Sun damaged pipe will be rejected.
2. High density polyethylene pipe (HDPE): The pipe shall be corrugated exterior/smooth interior pipe and water tight per ASTM D3212 with dual wall water tight gasket fittings.

B. Perforated Pipe (for subdrains): Shall be ADS N12 pipe, 3 hole, ASTM F405, AASHTO M 252; PVC ASTM D3034 SDR-35 storm drain pipe

C. Manhole: Shall be as shown on the drawing details.

D. Drop Inlet: Shall be as shown on the drawing details.

E. Curb Inlet: Shall be as shown on the drawing details.

F. Mortar: For pipe connections to concrete drainage structures, conform to ASTM C270 type N mortar. Place within one half hour after adding water.

G. Crushed Rock: Imported washed crushed rock. Minimum 100% passing 3/4 inch sieve.

H. Trench drain: Polycast, Polydrain or equal and as shown on drawings.

I. Area Drains: Shall be as shown on the drawing details.

J. Floor Drains: Shall be as shown on the drawing details.

K. Clean-outs: Shall be as shown on the drawing details.

L. Planter drains: Shall be as detailed on the drawing details.

M. Filter Fabric: Mirafi 140N.

PART 3 - EXECUTION

3.01 INSPECTION LAYOUT AND PREPARATION

A. Prior to installation of the work of this Section, carefully inspect and verify by field measurements that installed work of all other trades is complete to the point where this installation may properly commence

B. Layout all work, establish grades, locate existing underground utilities, set markers and stakes, setup and maintain barricades and protection facilities; all prior to beginning actual earthwork operations. Layout and staking shall be done by a licensed Land Surveyor or Professional Civil Engineer.

C. Verify that specified items may be installed in accordance with the approved design.

D. In event of discrepancy, immediately notify Owner and the Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

3.02 INSTALLATION

A. General: Installation shall be in strict conformance with referenced standards, the manufacturer's written directions, as shown on the drawings and as herein specified.

B. Verify invert elevations at points of connection to existing systems prior to any excavation. If invert elevations differ from that shown on drawings, notify Architect immediately.

C. Excavation and Bedding:

1. General: Trench straight and true to line and grade with bottom smooth and free of irregularities or rock points. Trench width in accordance with pipe manufacturer's recommendations and as per the drawings. Follow manufacturer's recommendations for use of each kind and type of pipe.

2. Bedding: Provide bedding as detailed on plans for the full length of the pipe. Bedding shall have a minimum thickness beneath the pipe of 4" or 1/8 the outside diameter of the pipe, which ever is greater. Provide bell holes and depressions for pipe joints only of size required to properly make joint.
3. If the trenches for the site drainage fall within areas to be lime treated, the piping shall be installed prior to any lime treatment operations.
   a. If additional piping is added to previously lime treated areas, the contractor shall backfill the trench with class 2 aggregate base and compact to 95%.

D. Laying of Pipe:

1. General: Inspect pipe prior to placing. Set aside any defective or damaged material. Do not place pipe in water nor place pipe when trenches or weather are unsuitable. Lay pipe upgrade, true to line and grade.
2. Bell and Spigot Joints: Lubricate inside of bells and outside of spigots with soap solution or as recommended by manufacturer. Wedge joints tight. Bell of bell and spigot pipe to be pointed upgrade.
3. Pipe shall be bedded uniformly throughout its length.
4. Pipe elevation shall be within 0.02 feet of design elevation as shown on plans.
5. Off Site Work: All work beyond the property lines shall be done in strict conformance with the requirements of the governing agency.

E. Backfilling:

1. General: Do not start backfill operations until required testing has been accomplished.
2. Trenches and Excavations: Backfill with material as detailed on plans, filling both sides of the pipe at the same time, carefully tamping to hold pipe in place without movement. Refer to Section 31 23 33 – TRENCHING AND BACKFILLING for fill above this layer.

F. Grouting of Pipes: Grout pipes smooth and water tight at drop inlet, manholes, and curb inlets. Grout back side of hood at curb inlets all grouting shall be smooth and consistent.

G. Off Site Work: All work beyond the property lines shall be done in strict conformance with the requirements of the local agency.

H. Cutting and Patching: Remove and replace existing surface features per applicable specification section (i.e. asphaltic concrete or concrete paving) where pipe is installed in areas of existing improvements.

3.03 TOLERANCES

A. Storm Drain structure grates

1. In landscape and lawn areas +- 0.05’.
2. In sidewalk and asphalt pavement +-0.025’.
3. In curb and gutter application +-0.0125’.

B. Cleanout Boxes and Lids

1. In landscape areas; 0.10 higher than surrounding finish grade, +-0.05’.
2. In sidewalks and asphalt pavement; Flush with surrounding finish grade, +-0.025’.

3.03 DEWATERING

A. Contractor to provide trench dewatering as necessary, no matter what the source is, at no additional cost to the owner.

B. If the previously excavated material from trenching is too wet to achieve trench backfill compaction the contractor shall make a reasonable effort to aerate and dry the material per section 31 00 00, 3.08, B

3.04 FLUSHING AND INTERNAL INSPECTIONS

A. The Contractor shall thoroughly ball and flush the storm drain system to remove all dirt and debris. Discharge water to an approved location.

3.05 CLEANING

A. Refer to Section 01 74 00.

B. Upon completion of work of this Section promptly remove from the working area all scraps, debris and surplus material of this Section.

C. Clean the dirt, rocks, and debris from all storm drain inlets, structures, and connecting pipes.

END OF SECTION