



CONTRACT DOCUMENTS AND SPECIAL PROVISIONS

FOR

**CITY OF GREENFIELD
Greenfield Community Park Project**

March 28, 2016

FOR USE WITH THE
STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION,
LATEST EDITION

Prepared by: Pacific Coast Land Design
3639 Harbor Boulevard, Suite 107
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SECTION A BID DOCUMENTS & INFORMATION

IMPORTANT NOTICE

- A1 - Invitation to Bid
- A2 - Instructions to Bidders
- A3 - Proposal
- A4 - Bid Schedule
- A5 - Listing of Subcontractors
- A6 - Surety
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Failure to complete, sign (where required), and return the above proposal documents with your bid may render it non-responsive.

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A1 INVITATION TO BID

Sealed proposals for the City of Greenfield, **Greenfield Community Park Project** addressed to the City of Greenfield, Civic Center, 599 El Camino Real, Greenfield, CA 93927 ATT: CITY CLERK, will be received at City Hall until **3:00 pm local time on the Thursday, April 21, 2016** and then will be publicly opened and read. Any bids received after the time and date specified will not be considered. **A non-mandatory Pre-Bid Meeting will be held Friday, April 11, at 11:00 AM at the Greenfield Community Center.**

Description of Work: The City of Greenfield (CITY) shall contract with an independent contractor to furnish & construct all improvements associated with a new park funded by the Proposition 84 Bond Grant Act. Work shall generally include all demolition, grading, drainage, public street improvements, recreation amenity construction, play equipment, signage, irrigation, landscaping, rest room construction, play field & play court construction, and all other items as described in this bid package.

The Contract Documents may be examined at City Hall, Civic Center, 599 El Camino Real, Greenfield, California. A copy can be obtained through the City Engineer, MNS Engineers inc. by contacting (805) 331-3553. Plans and specifications shall be available in digital format at no charge. Hard copies can be provided at printing cost plus \$50. If any bidder desires delivery service by Federal Express or UPS, an account number for that bidder must be provided to the Owner. Be advised that all express delivery from the City may take two days, depending on time of day shipped.

Each Bid must be submitted on the prescribed form and accompanied by an original bid security executed on the prescribed form, payable to the City of Greenfield, California, in an amount not less than 10 percent of the amount bid. Photocopy or facsimile copy will **NOT** be accepted.

The successful Bidder will be required to furnish the necessary additional bond(s) for the faithful performance of the Contract, as prescribed in the Contract Documents.

The Contractor may elect to receive 100 percent of payments due under the contract documents from time to time, without retention from any portion of the payment by the Owner in accordance with the provisions of Section 22300 of the Public Contract Code (previous Section 4590 of the California Government Code). Such securities, if deposited by the Contractor, shall be valued by the Owner, whose decision on valuation of the securities shall be final. Securities

eligible for investment under this provision shall be limited to those listed in Section 22300 of the Public Contract Code and Section 16430 of the California Government Code.

In accordance with the provisions of California Public Contract Code Section 3300, the Owner has determined that the Contractor (and/or subs as required) shall possess a valid Class A – General Engineering Contractor license or appropriate combination of specialty licenses, including C-27 landscaping, at the time that the Bid Proposal is submitted. Failure to possess the specified license shall render the bid as non-responsive and shall act as a bar to award of the Contract to any Bidder not possessing said license at the time of award.

Before a Contract will be awarded for the work contemplated herein, the Owner will conduct such investigation as is necessary to determine the performance record and ability of the apparent low Bidder to perform the size and type of work specified under this Contract.

The award will be made by the Owner on the basis of that Proposal from the lowest responsive, responsible Bidder which, in the Owner's sole and absolute judgment, will best serve the interest of the Owner. The Owner reserves the right to accept or reject any or all Proposals, and to waive any informalities and irregularities in said Proposals.

The Owner has obtained from the Director of the Department of Industrial Relations the prevailing rate of per diem wages for workers to be used on the job. Copies are available on the Internet at <http://www.dir.ca.gov/DLSR/PWD/index.htm>. The Contractor shall post a copy at the jobsite.

The right is reserved to reject all Bids or any Bid not conforming to the intent and purpose of the Contract Documents, and to postpone the award of the Contract for a period of time which, however, shall not extend beyond 28 days from the bid opening.

SUSAN STANTON, CITY MANAGER
MARCH 30, 2016

A2 INSTRUCTIONS TO BIDDERS

1. CONTRACT DOCUMENTS

A. FORMAT

The Contract Documents are divided into parts, divisions, and sections for convenient organization and reference. Generally, there has been no attempt to divide the Specification sections into work performed by the various building trades, work by separate subcontractors, or work required for separate facilities in the project.

B. DOCUMENT INTERPRETATION

The separate sections contained within these Contract Documents are intended to be mutually cooperative and to provide all details reasonably required for the execution of the proposed work.

Should there be any doubt as to the meaning or intent of said Contract Documents, the Bidder should request of the Engineer, in writing (at least 6 working days prior to bid opening) an interpretation thereof. Any interpretation or change in said Contract Documents will be made only in writing, in the form of Addenda to the Documents which will be furnished to all registered holders of Bidding Documents. Bidders shall submit with their PROPOSALS, or indicate receipt of, all Addenda. The Owner will not be responsible for any other explanation or interpretations of said Documents.

2. GENERAL DESCRIPTION OF THE PROJECT

A general description of the work to be done is contained in the Invitation to Bid. The scope is indicated on the accompanying Drawings and specified in applicable parts of these Contract Documents.

3. LICENSING REQUIREMENTS FOR CONTRACTORS

Bidders and their proposed subcontractors shall hold such licenses as may be required by the laws of the State for the performance of the work specified in the Contract Documents.

4. BIDDER'S UNDERSTANDING

Each Bidder must inform himself of the conditions relating to the execution of the work, and it is assumed that he will inspect the site and make himself thoroughly familiar with all the Contract Documents. Failure to do so will not relieve the successful Bidder of his obligation to enter into a Contract and complete the contemplated work in strict accordance with the Contract Documents. It shall be the Bidder's obligation to verify for himself and to his complete satisfaction all information concerning site and subsurface conditions.

Information derived from inspection of site will not in any way relieve the Contractor from any risk, or from properly examining the site and making such additional investigations as he may elect, or from properly fulfilling all the terms of the Contract Documents.

Each Bidder shall inform himself of, and the Bidder awarded a Contract shall comply with, federal, state, and local laws, statutes, and ordinances relative to the execution of the work. This requirement includes, but is not limited to, applicable regulations concerning minimum wage rates, nondiscrimination in the employment of labor, protection of public and employee safety and health, environmental protection, the protection of natural resources, fire protection, burning and non-burning requirements, permits, fees, and similar subjects.

5. TYPE OF PROPOSAL

LUMP SUM

The Lump Sum Proposal includes some work items that are each submitted on a Unit Price basis. Unit prices shall be submitted in the appropriate places. The total amount to be paid the Contractor shall be

the sum of these items as shown on the bid schedule in the total amount of the Unit Price Proposal as adjusted for additions or deletions resulting from Owner-authorized changes in the project.

6. PREPARATION OF PROPOSALS

All blank spaces in the Proposal form must be filled in, as required, in BLACK ink. All price information will be shown in both words and figures where required. No changes shall be made in the phraseology of the forms. Written amounts shall govern in case of discrepancy between the amounts stated in writing and the amounts stated in figures. In case of discrepancy between unit prices and totals, unit prices will prevail.

Any Proposal shall be deemed informal which contains omissions, erasures, alterations, or additions of any kind, or prices uncalled-for, or in which any of the prices are obviously unbalanced, or which in any manner shall fail to conform to the conditions of the published Invitation to Bid.

The Bidder shall sign his Proposal in the blank space provided thereon. If Bidder is a corporation, the legal name of the corporation shall be set forth above, together with the signature of the officer or officers authorized to sign Contracts on behalf of the corporation. If Bidder is a partnership, the true name of the firm shall be set forth above, together with the signature of the partner or partners authorized to sign Contracts in behalf of the partnership. If signature is by an agent, other than an officer of a corporation or a member of a partnership, a notarized power of-attorney must be on file with the Owner prior to opening of Proposals or submitted with the Proposal, otherwise the Proposal will be regarded as not properly authorized.

A. CHANGES IN QUANTITIES

The Owner reserves the right to increase or decrease the amount of any contract item of work shown in the Proposal that may be deemed necessary, except that such increases or decreases in amounts shall not be more than 25 percent of the quantities shown on the Drawings and Specifications without a Change Order.

If the total pay quantity of any item of work required under the Contract varies from the Drawings and Specifications by more than 25 percent, in the absence of an executed Change Order specifying the compensation to be paid, the compensation payable to the Contractor will be determined in accordance with the Standard Specifications, Sections 4-1.03B(1), 4-1.03B(2), or 4-1.03B(3), as the case may be.

7. SALES AND OTHER TAXES

All taxes, as required by the laws and statutes of the state and its political subdivisions, shall be paid by the Contractor. Prices quoted in the Proposal shall include all taxes, unless provision is made in the Proposal form to separately itemize the taxes.

8. COMPLIANCE WITH LABOR STANDARDS AND RATE OF WAGE REQUIREMENTS.

The work under this Contract is to be paid for by public funds; therefore, minimum prevailing wage rates published by the State Director of Industrial Relations are applicable. The Owner has obtained from the Director of Industrial Relations the Prevailing Wage Rates. Copies are available on the Internet at: <http://www.dir.ca.gov/DLSR/PWD/index.html>.

The Owner does not guarantee that labor can be procured for the minimum wages shown on the referenced schedules.

The rates of wages listed are minimum only, below which the Contractor cannot pay, and they do not constitute a representation that labor can be procured for the minimum listed.

9. SUBMISSION OF PROPOSALS

All Proposals must be submitted not later than the time prescribed, at the place, and in the manner set forth in the Invitation to Bid. Proposals must be made on the Proposal forms provided herewith, and submitted intact with the volume of specifications containing the Bidding Requirements, Contract Forms, and Conditions of the Contract.

Each Proposal must be submitted in a sealed envelope, so marked as to indicate the Bidder's name and its contents without being opened, and addressed in conformance with the instructions in the Invitation to Bid.

10. NAMING OF SUBCONTRACTORS

Bidder shall submit with his Proposal the names and business addresses of each subcontractor who will perform work under this Contract in excess of 1/2 of 1 percent of the amount of the total Proposal, and shall list the portion of the work which will be done by such subcontractor. If the Bidder fails to specify a subcontractor for any portion of the work to be performed under the Contract, the Bidder agrees to perform that portion of the work himself, and further agrees that he is qualified to perform that portion of the work himself.

11. MODIFICATION OR WITHDRAWAL OF PROPOSALS

Prior to the time and date designated for receipt of Proposals, any Proposal submitted may be modified or withdrawn by notice to the party receiving Proposals at the place designated for receipt of Proposals. Such notice shall be in writing over the signature of the Bidder or by telegram. If by telegram, written confirmation over the signature of the Bidder shall be mailed and postmarked on or before the date and time set for receipt of Proposals, and it shall be so worded as not to reveal the amount of the original Proposal. No Proposal may be withdrawn after the time scheduled for opening of Proposals, unless the time specified in paragraph AWARD OF CONTRACT of these Instructions to Bidders shall have elapsed.

12. BID SECURITY

Proposals must be accompanied by a certified check, or cashier's check drawn on a bank in good standing, or a Bid Bond issued by a Surety authorized to issue such bonds in the State where the work is located, in an amount not less than 10 percent of the total amount of the Proposal submitted. This bid security shall be given as a guarantee that the Bidder will not withdraw his Proposal for a period of 60 days after bid opening, and that if awarded the Contract, the successful Bidder will execute the attached Contract and furnish a properly executed Performance Bond and Payment Bond in the full amount of the Contract price within the time specified.

The Attorney-in-Fact who executes this bond in behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond. Where State Statute requires, certification by a resident agent shall also be provided.

If the Bidder elects to furnish a Bid Bond, he shall use the Bid Bond form bound herewith, or one conforming substantially thereto in form and content.

13. RETURN OF BID SECURITY

Within 15 days after the award of the Contract, the Owner will return checks given as bid securities to Bidders whose Proposals are not to be further considered in awarding the Contract. Retained bid securities will be held until the Contract has been finally executed, after which all bid securities, other than Bidders' bonds and any guarantees which have been forfeited, will be returned.

14. AWARD OF CONTRACT

Within 28 calendar days after the opening of Proposals, the Owner will accept one of the Proposals or will act in accordance with BASIS OF AWARD, below. The acceptance of the Proposal will be by written notice of award, mailed to the office designated in the Proposal, or delivered to the Bidder's representative. In the event of failure of the lowest responsive, responsible Bidder to sign the Contract and provide an acceptable Performance Bond, Payment Bond, Maintenance and Warranty Bond, and insurance certificate(s), the Owner may award the Contract to the next lowest responsible Bidder. Such award, if made, will be made within 60 days after the opening of Proposals. **Note that to expedite this work, the City may award within 5 days of receipt of bids.**

15. BASIS OF AWARD

The award will be made by the Owner on the basis of that Proposal from the lowest responsive, responsible Bidder which, in the Owner's sole and absolute judgment, will best serve the interest of the Owner.

The Owner reserves the right to accept or reject any or all Proposals, and to waive any informalities and irregularities in said Proposals.

If, at the time this Contract is to be awarded, the total of the lowest acceptable Proposal exceeds the funds then estimated by the Owner as available, the Owner may reject all Proposals or take such other action as best serves the Owner's interests.

16. EXECUTION OF CONTRACT

The successful Bidder shall, within 10 working days after receiving notice of award, sign and deliver to the Owner a Contract in the form hereto attached together with the acceptable bonds and insurance certificates as required in these Documents. Within 10 working days after receiving the signed Contract with acceptable bonds from the successful Bidder, the Owner's authorized agent will sign the Contract. Signature by both parties constitutes execution of the Contract. **Note that to expedite this work, the City requires execution by the contractor within 3-5 days of award and City shall immediately execute it upon receipt.**

17. CONTRACT BONDS

A. PERFORMANCE BOND

The successful Bidder shall file with the Owner, at the time of execution of the Contract, a Performance Bond on the form bound herewith in the full amount of the Contract, as security for the faithful performance of the Contract for the construction of the work, and to cover all guarantees against defective workmanship or materials, or both, for a period of 1 year after the date of the final acceptance of the work by the Owner.

B. PAYMENT BOND

The successful Bidder shall file with the Owner, at the time of execution of the Contract, a Payment Bond of the form bound herewith in the amount of 50 percent of the Contract, as security for the payment of all persons supplying labor and materials for the construction of the work.

C. POWER-OF-ATTORNEY

The Attorney-in-Fact (Resident Agent) who executes the Performance Bond or Payment Bond in behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety of the date of execution of the bonds.

D. SURETY

The Surety furnishing these bonds shall have a sound financial standing, have a record of service satisfactory to the Owner, and shall be authorized to do business in the state.

18. FAILURE TO EXECUTE CONTRACT AND FURNISH BOND

The Bidder who has a Contract awarded to him and who fails to promptly and properly execute the Contract or furnish the required Bonds shall forfeit the bid security that accompanied his bid, and the bid security shall be retained as liquidated damages by the Owner, and it is agreed that this said sum is a fair estimate of the amount of damages the Owner will sustain in case the Bidder fails to enter into a Contract or furnish the required Bonds. Bid security deposited in the form of cash, a certified check, or cashier's check shall be subject to the same requirement as a Bid Bond.

19. TIME OF COMPLETION

The time of completion of the work to be performed under this Contract is the essence of the Contract. Delays and extensions of time may be allowed in accordance with the provisions stated in the General Conditions. The time allowed for the completion of the work is stated in the Proposal.

END OF SECTION

A3 PROPOSAL

NOTE TO BIDDER: Use **BLACK** ink for completing this Proposal form.

To: City of Greenfield Telephone: 831-674-5591
Civic Center, 599 El Camino Real Facsimile: 831-674-3149
Greenfield, CA 93927

Project Title: Greenfield Community Park Project

From: _____
Company Name

Address: _____ / _____ / _____ / _____
Street City State Zip

Bidder's person to contact for additional information on this Proposal:

Name: _____
Title

Telephone: _____ **Facsimile:** _____

E-mail: _____

BIDDER'S DECLARATION AND UNDERSTANDING

The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this Proposal are those named herein, that this Proposal is, in all respects, fair and without fraud, that it is made without collusion with any official of the Owner, and that the Proposal is made without any connection or collusion with any person submitting another Proposal on this Contract.

The Bidder further agrees that he has exercised his own judgment regarding the review of the site and has utilized all data which he believes pertinent from the Engineer, Owner, and other sources in arriving at his conclusions.

The Bidder further declares that he has carefully examined the Contract Documents for the performance of the work of the project, that he has personally inspected the site, that he has satisfied himself as to the quantities involved, including materials and equipment, and conditions of work involved, including the fact that the description of the quantities of work and materials, as included herein, is brief and is intended only to indicate the general nature of the work and to identify the said quantities with the detailed requirements of the Contract Documents, and that this Proposal is made according to the provisions and under the terms of the Contract Documents, which Documents are hereby made a part of this Proposal.

CONTRACT EXECUTION AND BONDS

The Bidder agrees that if this Proposal is accepted, he will, within 10 days, not including Sundays and legal holidays, after notice of award, sign the Contract in the form annexed hereto, and will at that time, deliver to the Owner the Performance Bond and Payment Bond required herein, and will, to the extent of his bid, furnish all machinery, tools, apparatus, and other means of construction and do the work and furnish all the materials necessary to complete all work as specified or indicated in the Contract Documents.

CERTIFICATES OF INSURANCE

The Bidder further agrees to furnish the Owner, before commencing the work under this Contract, the certificates of insurance as specified in these Documents.

START OF CONSTRUCTION AND CONTRACT COMPLETION TIME

The Bidder further agrees to begin work within 10 calendar days after the date of the Notice to Proceed and to complete the construction, in all respects, within **8 Months** after receiving the Notice to Proceed.

LIQUIDATED DAMAGES

In the event the Bidder is awarded the Contract and shall fail to complete the work within the time limit or extended time limit agreed upon, as more particularly set forth in the Contract Documents, liquidated damages shall be paid to the Owner at the rate of **\$200 per day** for all work awarded under one contract until the work shall have been satisfactorily completed as provided by the Contract Documents. Sundays and legal holidays shall be excluded in determining days in default.

ADDENDA

The Bidder, hereby acknowledges that he has received Addenda No's.

_____/_____/_____/_____/_____/_____/_____/_____.

(Bidder shall insert No. of each Addendum received) and agrees that all addenda issued are hereby made part of the Contract Documents, and the Bidder further agrees that his Proposal(s) includes all impacts resulting from said addenda.

SALES AND USE TAXES

The Bidder agrees that all sales and use taxes are included in the stated bid prices for the work, unless provision is made herein for the Bidder to separately itemize the estimated amount of sales tax.

+ + + + +

**A4 BID SCHEDULE
GREENFIELD COMMUNITY PARK
Greenfield, CA**

BASE BID SCHEDULE

Item No.	Item Description	Units	Unit Cost	Qty.	Bid Price
SITE WIDE FEATURES					
1	Mobilization	LS		1	
2	Demolition	LS		1	
3	Storm Water Pollution Control	LS		1	
4	Row/On-site Improvements	LS		1	
5	Earthwork & Disposition of Rock & Cobble	LS		1	
6	Boulders	Ton		100	
7	Site Utility Connections: Sewer & Water	LS		1	
8	Electrical	LS		1	
9	Site Drainage	LS		1	
10	Restroom	LS		1	
11	Stabilized Decomposed Granite Paving	LS		1	
12	Aluminum Edging for Decomposed Granite	LF		4614	
13	5" Thick Concrete Maintenance Drive	LS		1	
14	3 1/2" Thick Concrete Flatwork- Not including amphitheater, ROW/Onsite concrete or water play slab	LS		1	
15	Concrete Steps – Not including amphitheater	LF		85	
16	Concrete Header for Wood Fiber Play Surface	LF		655	
17	Concrete Header for Sand Play Area	LF		60	
18	Concrete Entry Monument with flagpole, lettering	LS		1	
19	Amphitheater	LS		1	
20	Masonry barbeque walls with concrete counter tops	LS		1	
21	Galvanized steel handrails	LS		1	
22	Wood Pergola	LS		1	
AMMENTIES AND APPURTENANCES					
23	Signage	EA		13	
24	Group Barbeque	EA		1	
25	Individual Barbeque	EA		6	
26	Trash/Recycle Receptacles	EA		12	

27	Benches Prefabricated	EA		12	
28	Emergency call box	EA		1	
29	Doggie bag posts & receptacles and signs	EA		2	
30	Picnic Tables	EA		13	
31	Bike Racks	EA		2	
LANDSCAPE					
32	Root Barrier	LF		100	
33	Soil Preparation & amendments (Turf area only)	SF		29,940	
34	15 Gallon Trees	EA		56	
35	24" box Tree	EA		31	
36	36" box Trees	EA		0	
37	1 Gallon Shrubs	EA		422	
38	5 Gallon Shrubs(Includes 12 5 gal vines)	EA		478	
39	15 Gallon Shrubs	EA		27	
40	Hydroseeded mown & not mown turf	SF		29,940	
41	2" Organic Mulch	CY		300	
42	Irrigation	LS		1	
43	Landscape Maintenance – three months	LS		1	
MANUFACTURED PLAY & EXERCISE EQUIPMENT					
44	See-Saw for 4-Kompan	LS		1	
45	Accessible Zipline-Landscape Structures	LS		1	
46	Arc Disk Swing-Landscape Structures	LS		1	
47	Embankment Slide-Columbia Cascades	LS		1	
48	Draw Gates	LS		1	
49	Farm Pump	LS		1	
50	Leg Flex Exercise Signage	LS		1	
51	Daisy 4 person Spring Rider	LS		1	
52	Tree House Structure	LS		1	
53	Arched Single Bay Swing	LS		1	
54	Wooden Spinner	LS		1	
55	Spinner Bowl	LS		1	
56	Wood Triple Balance Beam	LS		1	
57	Horizontal Bars	LS		1 set	
CUSTOM PLAY EQUIPMENT					
58	Concrete crawl tunnels – Adventure Area Sheet L2.2 Exploration Area Sheet L2.3	LS		1	
59	Wooden Steppers	LS		1	
60	Synthetic Turf Hill	LS		1	
61	Faux Rock Climbing Wall	LS		1	
62	Mister System	LS		1	
63	Water Play Area	LS		1	

64	Poured In Place Surfacing (including base)	SF		956	
65	Engineered Wood chip Surface	CY		343	
66	Play Sand	TON		20	
67	Tennis Court with fence	LS		1	
68	Basketball Court	LS		1	
TOTAL BASE BID SCHEDULE IN FIGURES:					

ALTERNATE ADD-ON ITEMS BID SCHEDULE

Item No.	Add-On Item Description	Units	Unit Cost	Deduct Qty.	Bid Price ADDITIONS
1	Amphitheater Shade Structure	LS		1	
2	Pinnacles Rock Climb	LS		1	
3	Hill Fort and CMU Wall	LS		1	
4	Free Standing Slide	LS		1	
5	Small Fort	LS		1	
6	Binoculars on Pedestal	LS		1	
7	Concrete Tennis and Basketball Court	LS		1	
TOTAL ALL ADD-ONS					

The Contractor shall be responsible for calculating and providing totals for the schedule. The proposal schedule shall include all costs for services, labor, materials, equipment, removal, and installation associated with completing the work in place per the plans, specifications and details. In case of conflict or error in calculation, the bid may be considered irregular and may be subject to rejection. The order of precedence shall be: (1) written total (in words); (2) figures; (3) item cost; (4) item unit price.

BASE BID SCHEDULE TOTAL (in words):

Award of this contract shall be made to the lowest responsible bidder based upon the base bid amount. Bidders are required to complete and provide responsive bids for all items on the alternate bid schedule in order to be deemed responsive to this bid process. The City reserves the right to substitute any and all alternate bid items in place of the corresponding base bid items, or, in the case of additive bid items, to add them to the contract total at its sole discretion when submitted to Council for contract award. The City may also, at its sole discretion, choose to award none of the alternate or additive bid items.

The Budget for this Project is \$2,000,000.

NAME OF BIDDER:

CONTRACTOR'S LICENSE NO.:

AUTHORIZED SIGNATURE:

TITLE:

DATE:

STATEMENT OF EXPERIENCE OF BIDDERS

The Bidder is requested to state below, or on separate attachment, what project (s) of similar magnitude or character the bidder has completed. Include references with the name and telephone number of a contact person. This statement of experience will enable the City Council to evaluate the Bidders experience, skill and business standing and ability to conduct the proposed project as rapidly and completely as required under the terms of the contract.

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SEE APPENDIX E, "CRITERIA FOR ESTABLISHING RESPONSIBLE BIDDERS"

A5 LISTING OF SUBCONTRACTORS

As required under the provisions of Section 4104 et seq of the California Public Contract Code, any person making a bid or offer to perform the work, shall in his or her bid or offer, set forth: (a) The name and location of the place of business of each subcontractor who will perform work or labor or render service to the prime contractor in or about the construction of the work or improvement, or a subcontractor licensed by the State of California who, under subcontract to the primary contractor specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one-half of 1 percent of the prime contractor's total bid; (b) The portion of the work which will be done by each such subcontractor under this act. The prime contractor shall list only one subcontractor for each such portion as defined by the prime contractor in his or her bid. **The Contractor shall also verify license and DIR Registration No.**

SUBCONTRACTORS

The Bidder further proposes that the following subcontracting firms or businesses will be awarded subcontracts in the event that the Bidder is awarded the Contract:

Name:	
Address:	
Portion of Work:	
Lic. No:	DIR No.:

Name:	
Address:	
Portion of Work:	
Lic. No:	DIR No.:

Name:	
Address:	
Portion of Work:	
Lic. No:	DIR No.:

Name:	
Address:	
Portion of Work:	
Lic. No:	DIR No.:

(Note: Attach additional sheets as required.)

A6 SURETY

If the Bidder is awarded a construction Contract on this Proposal, the Surety who provides the Performance Bond and Payment Bond will be:

_____ whose address is

Street City State Zip

A7 BIDDER

The name of the Bidder submitting this Proposal is:

_____ doing business at

Street City State Zip

which is the address to which all communications concerned with this Proposal and with the Contract shall be sent.

The names of the principal officers of the corporation submitting this Proposal, or of the partnership, or of all persons interested in this Proposal as principals are as follows:

If Sole Proprietor or Partnership

IN WITNESS hereto the undersigned has set his (its) hand this ____ day of _____, 20____.

Signature of Bidder

Title

If Corporation

IN WITNESS WHEREOF the undersigned corporation has caused this instrument to be executed and its seal affixed by its duly authorized officers this _____ day of _____, 20____.

(SEAL)

Name of Corporation

By _____

Title _____

Attest _____

Secretary

END OF SECTION

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SECTION B CONTRACT INFORMATION & DOCUMENTS

IMPORTANT NOTICE

Forms B1 through B4 do not need to be complete at the time of bid submittal. It is required that the bidder to whom the contract is awarded completely fill out these documents and submit them within the time period specified.

- B1 - CONTRACT**
- B2 - CALIFORNIA BIDDERS BOND**
- B3 - CALIFORNIA PAYMENT BOND**

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B1 - CONTRACT

CITY OF GREENFIELD



CONTRACT FOR

[Name of Contractor]

Greenfield Community Park



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CONTRACTOR SERVICES AGREEMENT

FOR THE

CITY OF GREENFIELD

[NAME OF CONTRACTOR]

THIS AGREEMENT is made and entered into this ___ day of _____, 2015, by and between the City of Greenfield, a Municipal Corporation ("City") and [Name of Contractor], ("Contractor"), for the Greenfield Community Park Project ("Project"). City and Contractor agree as follows:

1. SCOPE OF SERVICES

Contractor shall do all work, attend all meetings, produce all reports and carry out all activities necessary to complete the services as set forth in Exhibit A, entitled "Scope of Services," attached hereto and incorporated herein by reference, as requested by the City. This Agreement and its exhibits shall be collectively known as the "Agreement." Terms set forth in any section, part, or exhibit of this Agreement shall be deemed to be incorporated in all sections, parts, or exhibits of this Agreement as if set forth in full therein.

2. CHANGES TO SCOPE OF SERVICES

- **CITY REQUEST.** The City may at any time, and from time to time, upon a minimum of ten (10) days written notice, modify the scope of services to be provided under this Agreement. Contractor shall, upon receipt of said notice, determine the impact on both time and compensation of such change in scope and notify the City in writing.
- **APPROVAL OF CHANGES.** Upon agreement between the City and Contractor of such change in scope, including any increase or decrease in the amount of Contractor's compensation and/or changes in the schedule or time of performance, an amendment to this Agreement shall be prepared describing such changes. Any increase in the amount of Contractor's compensation and/or changes in Exhibit A and/or Exhibit B must be approved in advance by



the City Manager, and if the increase in compensation exceeds \$25,000.00, the change shall also be approved by the City of Greenfield City Council.

3. COMPENSATION

- TERMS. Compensation to the Contractor shall be as set forth in Exhibit B, attached hereto and incorporated herein by reference.
- NO PAY FOR ADDITIONAL SERVICES WITHOUT WRITING. City shall not pay any additional sum for any expense or cost whatsoever incurred by Contractor in rendering services or providing work pursuant to this Agreement unless this Agreement is modified by a properly executed change order or amendment prior to the time any such additional expense or cost is incurred by Contractor. Contractor shall be compensated for any additional services in the amounts and in the manner as agreed to by the City and Contractor at the time City's express written authorization signed by the City Manager, or the City Manager's designee, is given to Contractor for the performance of said services.
- PAYMENT. Amounts due to Contractor from City for services rendered shall be evidenced by the submission to City by Contractor of an invoice, prepared in a form satisfactory to City, setting forth the amount of compensation due for the period covered. All such invoices shall be in full accordance with any and all applicable provisions of this Agreement. City will make payment on each such invoice within thirty (30) days of its receipt, provided, however, that if Contractor submits an invoice which is incorrect, incomplete, or not in accordance with the provisions of this Agreement, then City shall not be obligated to process any payment to Contractor until a correct and complying invoice has been submitted.
- DISALLOWED EXPENDITURE. An expenditure which is not authorized by this Agreement or which cannot be adequately documented shall be disallowed and must be reimbursed to the City by the Contractor. Absent fraud or mistake on the part of the City, the determination by the City of the allowability of any expenditure shall be final.
- ADDITIONAL PERSONNEL. With the approval of City, Contractor may use and bill for additional personnel not specifically named in this Agreement, except such use shall not exceed the amount of compensation named herein without the express written consent of City in accordance with the requirements of this Agreement.

4. TIME OF PERFORMANCE

The services of Contractor are to commence upon execution of this Agreement by City, and shall be undertaken and completed in a prompt and timely manner, in accordance with the Scope of Work referenced in Exhibit A. Except as provided in Sections 12 below, this



Agreement shall terminate no later than [insert date], unless extended by the mutual agreement of both parties.

5. RESPONSIBILITY OF CONTRACTOR

By executing this Agreement, Contractor warrants to City that Contractor possesses, or will arrange to secure from others, all of the necessary professional, technical, and trade capabilities, experience, resources, staffing, and facilities necessary to provide to City the services contemplated under this Agreement. Contractor further warrants that it and its employees, agents, and any subcontractors have all licenses, permits, qualifications, and approvals of whatsoever nature that are legally required to practice their respective professions or trades and will maintain same during the term of this Agreement. In addition to the foregoing, Contractor and any subcontractor providing services under this Agreement shall obtain and maintain during the term of this Agreement a valid Business License issued by City.

6. RESPONSIBILITY OF CITY

The City hereby agrees to:

- Assist Contractor by placing at its disposal all available information pertinent to the Project, including previous reports, studies, drawings, specifications, and other relevant data or documents.
- Guarantee access to and make all provision for Contractor to enter upon public and private property as required for Contractor to perform its services required by this Agreement.
- Examine all studies, reports, drawings, specifications, proposals and other documents prepared and presented by Contractor, and render verbally or in writing as may be appropriate, decisions pertaining thereto within a reasonable time so as not to delay the progress of the work by Contractor.
- Designate in writing a person to act as City's representative with respect to work to be performed under this Agreement. Such person shall have complete authority to transmit instructions, receive information, interpret and define City's policies and decisions with respect to materials, equipment, elements and systems pertinent to Contractor's services.

7. INSPECTION OF WORK, CORRECTION

The City shall have the right to inspect any work or services performed hereunder to verify that the work or services are being and/or have been performed in accordance with the applicable federal, state and local requirements and this Agreement. The Contractor shall correct all work or services found by such inspections not to conform to the applicable requirements. The City will withhold payment to the Contractor and any subcontractor, respectively, until it is so corrected.

8. INDEPENDENT CONTRACTOR



- Contractor enters into this Agreement as, and shall at all times remain as to the City, an independent contractor and not as an employee of the City. Nothing in this Agreement shall be construed to be inconsistent with this relationship or status. Any persons employed by Contractor for the performance of services pursuant to this Agreement shall remain employees of Contractor, shall at all times be under the direction and control of Contractor, and shall not be considered employees of City. All persons employed by Contractor to perform services pursuant to this Agreement shall be entitled solely to the right and privileges afforded to Contractor employees and shall not be entitled, as a result of providing services hereunder, to any additional rights or privileges that may be afforded to City employees.
- Contractor shall be solely responsible for the conduct and control of the work performed under this Agreement, for supervising the services and work provided under this Agreement, hiring of personnel, establishing standards of performance, assignment of personnel, determining and affecting discipline, determining required training, maintaining personnel files, and other matters relating to the performance of services and control of personnel. The City may use any reasonable means to monitor performance and the Contractor shall comply with the City's request to monitor performance.
- Contractor shall be free to render work and services to others during the term of this Agreement, so long as such activities do not interfere with or diminish Contractor's ability to fulfill the obligations established herein to City.

9. PROVISION OF LABOR, EQUIPMENT AND SUPPLIES

- CONTRACTOR PROPERTY. Contractor shall furnish all necessary labor, supervision, equipment, communications facilities, and supplies necessary to perform the services required by this Agreement except as set forth in Exhibit D. City acknowledges that all equipment and other tangible assets used by Contractor in providing these services are the property of Contractor and shall remain the property of Contractor upon termination of this Agreement.
- SPECIAL SUPPLIES. City shall be responsible for supplying any special supplies, stationary, notices, forms or similar items that it requires to be issued with a City logo. All such items shall be provided at City's sole cost and expense.

10. APPROVAL OF SUBCONTRACTORS AND KEY PERSONNEL

The staff and subcontractors specified in Exhibit C, entitled "Listing of Subcontractors and Key Personnel," attached hereto and incorporated herein by reference, shall provide the services set forth herein, and shall be the subcontractors and persons primarily in charge of and responsible for performing such work. Contractor shall notify City of any changes in Contractor's staff or subcontractors to be assigned to perform the services required under this Agreement and shall obtain the approval of the City prior to any such changes.



11. TERMINATION AND SUSPENSION

- TERMINATION FOR CONVENIENCE. The City, upon thirty (30) days written notice, may, in its sole discretion, terminate this Agreement at any time for convenience, and without cause. In the event of such termination, Contractor shall be entitled to compensation for all necessarily and reasonably incurred expenses and costs for services rendered and work performed for City under the terms of this Agreement to the date of termination.
- TERMINATION FOR CAUSE. The City may terminate this Agreement and be relieved of any payments to Contractor hereunder should the Contractor negligently or willfully fail to perform the requirements of this Agreement at the time and in the manner herein provided. The City shall provide written notice of such termination for cause to the Contractor, and the Contractor shall stop all work and services provided under this Agreement on the date and under the terms specified in such written notice of termination. Such termination shall not, however, take effect until Contractor has been given a ten-day (10) opportunity to cure any such default in the performance of duties under this Agreement. In the event Contractor is unable or refuses to cure the breach or default within the specified period, the City may proceed with the work in any manner deemed proper by the City. All costs to the City in terminating this Agreement and proceeding with the work as the City deems proper, shall be deducted from any sum due the Contractor under this Agreement and the balance, if any, shall be paid to the Contractor upon demand. If any balance due Contractor is insufficient to reimburse the City for its costs incurred hereunder, the Contractor shall pay to the City the amount of those remaining costs upon demand.
- TERMINATION UPON MUTUAL CONSENT. The City and Contractor may terminate this Agreement upon mutual consent upon such termination terms and conditions as the parties agree, including the effective date and in the case of partial termination, the portion to be terminated.
- OBLIGATIONS SURVIVE TERMINATION. Notwithstanding any termination of this Agreement, Contractor shall not be relieved of liability to the City for damages sustained by the City by virtue of any breach of this Agreement by Contractor, and the City may withhold any payments due to Contractor until such time as the exact amount of damages, if any, due the City from Contractor is determined. All of the indemnification, defense and hold harmless obligations in this Agreement shall survive termination.
- SUSPENSION. The City may order Contractor, in writing, to suspend, delay, or interrupt all or any part of the work under this Agreement for such reasonable period of time that City determines appropriate for the convenience of the City. If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted by the City, the costs of Contractor resulting from such unreasonable suspension, delay, or interruption (excluding profit), shall be allowed, and if this results in an increase in the total amount



payable under this Agreement, this Agreement shall be modified in writing accordingly. However, no allowance of costs or adjustment to the amount payable under this Agreement shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment is provided for or excluded under any other term or condition of this Agreement.

- EFFECTS DURING SUSPENSION AND AFTER TERMINATION. Costs of Consultant resulting from obligations incurred by the Consultant during a suspension or after termination of this Agreement are not allowable unless the City expressly authorizes them in the notice of suspension or termination or subsequently. Other Consultant costs during suspension or after termination which are necessary and not reasonably avoidable are allowed if the costs resulting from obligations which were properly incurred by the Consultant before the effective date of suspension or termination, are not in anticipation of suspension or termination, in the case of a termination are noncancellable, and the costs would be otherwise allowable if this Agreement was not suspended or terminated.

12. ENFORCEMENT FOR NONCOMPLIANCE

- REMEDIES. If the Contractor materially fails to comply with any term or condition of this Agreement, the City may, at its sole discretion, take any of the following enforcement actions:

1. Temporarily withhold cash payments pending correction of the deficiency by the Contractor.
2. Disallow all or part of the cost of the work, service, activity or action not in compliance.
3. Wholly or partly suspend or terminate this Agreement.
4. Withhold further payments to Contractor.
5. Take any other remedies that may be legally available.

- HEARINGS, APPEALS. In taking an enforcement action, the City will provide the Contractor an opportunity for a hearing, appeal or other administrative proceeding to which the Contractor is entitled under any statute or regulation applicable to the action involved.

13. DISPUTES

Should a dispute arise between the Contractor and City regarding any term, condition or provision of this Agreement, or any work or services provided by the Contractor hereunder, or whether the Contractor has or is performing its obligations as required hereunder, Contractor



shall continue with its responsibilities under this Agreement during any such dispute, unless the City agrees, in writing, otherwise.

14. PROPERTY OF CITY

- MATERIALS PREPARED EXCLUSIVE PROPERTY OF CITY. Subject to the Patent and Copyright provisions of this Agreement, it is mutually agreed that all materials prepared by the Contractor under this Agreement are upon creation and shall be at all times the exclusive property of the City, and the Contractor shall have no property right therein whatsoever. City agrees that Contractor shall bear no responsibility for any reuse of the materials prepared by the Contractor if used for purposes other than those expressly set forth in this Agreement. Contractor shall not disseminate any information or reports gathered or created pursuant to this Agreement without the prior written approval of City including without limitation information or reports required by government agencies to enable Contractor to perform its duties under this Agreement and as may be required under the California Public Records Act excepting therefrom as may be provided by court order. Contractor will be allowed to retain copies of all deliverables to the City.
- CONTRACTOR TO DELIVER CITY PROPERTY. Immediately upon termination, or upon the request by the City, the City shall be entitled to, and the Contractor shall deliver to the City, all data, drawings, specifications, reports, estimates, summaries and other such materials and property of the City as may have been prepared or accumulated to said date by the Contractor in performing this Agreement. Contractor will be allowed to retain copies of all deliverables to the City.

15. CONFLICT OF INTEREST

Contractor covenants that neither it, nor any of its officers, principals, employees, agents or subcontractors, has or shall acquire during the term of this Agreement, any interest, directly or indirectly, which would conflict in any manner with the interests of City or which would in any way conflict in any manner with the Contractor's performance of services under this Agreement. Contractor further covenants that in the performance of this Contract, Contractor shall take reasonable care to ensure that no person having any such interest shall be employed by it as an officer, principal, employee, agent or subcontractor without the express written consent of the City Manager. Contractor agrees to at all times avoid conflicts of interest or the appearance of any conflicts of interest with the interests of City in the performance of this Agreement. Contractor agrees to include language similar to this section in all contracts with subcontractors and agents for the work contemplated herein.

16. CONFIDENTIAL INFORMATION

All City information disclosed to Contractor and all materials prepared or assembled by Contractor pursuant to performance of this Agreement shall be treated as confidential and shall not be disclosed to any other persons or parties without the prior written approval of the City, except by court order.



17. COOPERATION

City and Contractor shall promptly notify the other party should Contractor or City or their officials, officers, employees, agents, or subcontractors be served with any summons, complaint, subpoena, notice of deposition, request for documents, interrogatories, request for admissions or other discovery request, court order or subpoena from any party regarding this Agreement and the work performed hereunder. City and Contractor each retains the right, but has no obligation, to be present at any deposition, hearing or similar proceeding. Contractor and City agree to cooperate fully with the other party and to provide the other party with the opportunity to review any response to discovery requests provided by Contractor or City. However, City's and Contractor's right to review any such response does not imply or mean the right to control, direct, or rewrite said response.

18. COMPLIANCE WITH LAW

A. The Contractor and each of its subcontractors shall comply with all applicable local, state and federal laws, regulations and requirements that pertain to, among others, construction, health and safety, labor standards, fair employment practices, equal opportunity, immigration and naturalization, nondiscrimination, housing and building codes, and all other matters applicable to the City, its contractors or subcontractors, including but not limited to the state and federal provisions set forth herein and in Exhibit F and Exhibit G. Should the City be fined or have sanctions imposed upon it because of Contractor's or its subcontractor's failure to comply with such requirements, Contractor shall reimburse the City for the cost of all such fines or sanctions imposed, together with any and all costs, including without limitation attorney fees, incurred by the City in connection therewith.

B. If Contractor becomes aware of a conflict between such laws, regulations or requirements, Contractor shall notify City, in writing, of such conflict, and City and Contractor shall work together cooperatively to resolve the conflict. Under such circumstances, Contractor shall not be liable to City for any fines or sanctions resulting from Contractor's or its subcontractor's failure to comply with such requirements.

19. NON-DISCRIMINATION, NON-PREFERENTIAL TREATMENT

During the performance of this Agreement, Contractor and its subcontractors shall not unlawfully discriminate against or grant preferential treatment to any employee or applicant for employment because of race, religion, creed, color, national origin, ethnicity, citizenship, disability (mental or physical), age, marital or parental status, genetic information, sex, sexual orientation, gender, gender identification, or any other characteristic protected under applicable federal or state law. Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, creed, color, national origin, ethnicity, national origin, gender, sex, sexual orientation, gender identification, age, or disability. Contractor and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment. Contractor shall comply to the fullest extent required by law, with all applicable local, state, and federal laws relating to nondiscrimination and preferential treatment. Contractor shall include these nondiscrimination, preferential treatment, and



compliance provisions in all subcontracts to perform work or provide services under this Agreement.

20. PREVAILING WAGES

A. Where funds provided through this Agreement are used for construction work, or in support of construction work, the Contractor shall ensure that the prevailing wage requirements of California Labor Code, Chapter 1, commencing with Section 1720, Part 7 [California Labor Code Section 1720-1743] (pertaining to the payment of prevailing wages and administered by the California Department of Industrial Relations) are met.

B. For the purposes of this requirement, "construction work" includes but is not limited to rehabilitation, alteration, demolition, installation or repair done under contract and paid for, in whole or in part, through this Agreement. All construction work shall be done through the use of a written contract with a properly licensed building contractor incorporating these requirements. Where the construction contract will be between the City and a licensed building contractor, the City shall serve as the "awarding body" as that term is defined in the Labor Code. Where the City will provide funds to a third party that will enter into the construction contract with a licensed building contractor, the third party shall serve as the "awarding body." Prior to any disbursement of funds, including but not limited to release of any final retention payment, the City may require a certification from the awarding body that prevailing wages have been or will be paid.

21. ASSIGNMENT AND SUBSTITUTION

This Agreement is binding on the heirs, successors, and assigns of the parties hereto. Contractor shall not assign, transfer or substitute any interest in this Agreement without the prior written consent of the City, which shall not be unreasonably withheld, and any attempt by Contractor to so assign, transfer or substitute this Agreement or any rights, duties or obligations arising hereunder shall be void and of no effect. However, claims for money due or to become due Contractor from the City under this Agreement may be assigned to a financial institution, but only with prior written consent of the City. Notice of any assignment or transfer whether voluntary or involuntary shall be furnished promptly to the City. The rights and benefits under this agreement are for the sole and exclusive benefit of the City and this Agreement shall not be construed that any third party has an interest in this Agreement.

22. SUBCONTRACTING

None of the services covered by this Contract shall be subcontracted without the prior written consent of the City. Contractor shall be as fully responsible to the City for the negligent acts and omissions of its contractors and subcontractors, and of persons either directly or indirectly employed by them, as it is for the negligent acts and omissions of persons directly employed by Contractor. Subcontracts, if any, shall contain a provision making them subject to all provisions contained in this Agreement.

23. LIABILITY OF CONTRACTOR



Contractor shall be responsible for performing the work under this Agreement in a manner which is consistent with the generally accepted standards of Contractor's profession and shall be liable for its own negligence and the negligent acts of its employees, agents, contractors and subcontractors. The City shall have no right of control over the manner in which the work is to be done but only as to its outcome, and shall not be charged with the responsibility of preventing risk to Contractor or its employees, agents, contractors or subcontractors.

24. INDEMNIFICATION

- INDEMNIFICATION FOR PROFESSIONAL LIABILITY. When the law establishes a professional standard of care for Contractor's Services, to the fullest extent permitted by law, Contractor shall indemnify, defend with counsel approved by City, and hold harmless City and any and all of its officers, officials, employees and agents from and against any and all loss, liability, damage, cost and expense (including without limitation, attorney fees, expert fees, court costs, interest, and all other costs and fees of litigation or defense) of every nature arising out of or in connection Contractor's sole negligence, recklessness, or willful misconduct of Contractor, its officers, agents, employees or subcontractors hereunder or its or their failure to comply with any of its or their obligations contained in this Agreement. With respect to the design of public improvements, the Contractor shall not be liable for any injuries or property damage resulting from the reuse of the design on a project other than the subject of this Agreement without the written consent of the Contractor.
- INDEMNIFICATION FOR OTHER THAN PROFESSIONAL LIABILITY. Other than in the performance of professional services and to the full extent permitted by law, Contractor shall indemnify, defend with counsel approved by City, and hold harmless City and any and all of its officers, officials, employees and agents from and against any and all loss, liability, damage, cost and expense (including without limitation, attorney fees, expert fees, interest, and all other costs and fees of litigation or defense) of every nature (including but not limited to court proceedings, arbitration proceedings, regulatory proceedings, or administrative proceedings) arising out of or in connection Contractor's sole negligence, recklessness, or willful misconduct of Contractor, its officers, agents, employees or subcontractors hereunder or its or their failure to comply with any of its or their obligations contained in this Agreement.
- GENERAL INDEMNIFICATION. Contractor agrees to obtain executed indemnity agreements with provisions identical to those set forth herein for each and every subcontractor or any other person or entity involved by, for, with or on behalf of Contractor in the performance of this Agreement. In the event Contractor fails to obtain such indemnity obligations from others as required herein, Contractor agrees to be fully responsible to City according to the terms of this section. Failure of City to monitor compliance with these requirements



imposes no additional obligations on City and will in no way act as a waiver of any rights hereunder. This obligation to indemnify, defend, and hold harmless City as set forth herein is binding on the successor, assigns or heirs of Contractor and shall survive the termination of this Agreement.

- INDEMNITY LIMITATION. Without affecting the rights of City under any provision of this Agreement, Contractor shall not be required to defend, indemnify and hold harmless City of liability attributable to the active negligence of City, provided such active negligence is determined by agreement between the parties or by the findings of a court of competent jurisdiction. In instances where City is shown to have been actively negligent and where City's active negligence accounts for only a percentage of the liability involved, the obligation of Contractor will be for that entire portion or percentage of liability not attributable to the active negligence of City.

25. INSURANCE

Contractor shall have and maintain the insurance policies set forth in Exhibit E, entitled "Insurance Requirements," attached hereto and incorporated herein by reference. All policies, endorsements, certificates and/or binders shall be subject to approval by City as to form and content. These requirements are subject to amendment or waiver only if so approved in writing by City. The insurance policies required herein shall be maintained by the Contractor, at its sole expense, for the time specified in Exhibit E. A lapse in any required insurance coverage during the term of this Agreement shall be a breach of this Agreement.

26. RECORDS

Contractor shall maintain all books, records, documents, drawings, specifications, accounting ledgers, payroll and labor costs, and similar materials relating to work performed for City under this Agreement on file for at least five (5) years following the date of final payment to Contractor by City, or as otherwise specified herein. Any duly authorized representative(s) of City shall have free access to such documents and records for the purpose of inspection, audit and copying at all reasonable times, during Contractor's usual and customary business hours. Contractor shall provide proper facilities to City's representative(s) for access and inspection.

27. PATENT, COPYRIGHT

If this Agreement results in any work or materials, including but not limited to discovery by or invention, writing, data or document developed by the Contractor in the course of or under this Agreement, that is or may be copyrightable or patentable, the Contractor may retain the entire right, title, and interest therein (patent or copyright as the case may be). With respect to any such patent or copyright interest, the City shall have a royalty-free, nonexclusive, irrevocable and paid-up license to reproduce, publish or otherwise use and to authorize others to use for governmental purposes any such work or materials.

28. LOSS LEADER



It is unlawful for any person engaged in business within this state to sell or use any article or product as a "loss leader" as defined in section 17030 of the Business and Professions Code.

29. EXHIBITS INCORPORATED

All Exhibits referred to in this Agreement and attached to it are hereby incorporated in it by this reference.

30. ENTIRE AGREEMENT

This Agreement represents the entire understanding between the parties relative to the matters contained herein. There are no understandings, agreements, conditions, representations, warranties or promises, whether oral or written, with respect to this Agreement, except those contained in or referred to in this Agreement. This Agreement supersedes all prior understandings, agreements, courses of conduct, prior dealings among the parties and documentation of any kind without limitation.

31. AMENDMENT

This Agreement may be modified or amended, or any of its provisions waived, only by a subsequent written agreement executed by each of the parties. The parties agree that this requirement for written modification cannot be waived and any attempted waiver shall be void.

32. COUNTERPARTS

This Agreement may be executed in multiple counterparts, each of which shall be an original and all of which together shall constitute one agreement.

33. WAIVER

The waiver at any time by any party of any of its rights with respect to a default or other matter arising in connection with this Contract shall not be deemed a waiver with respect to any subsequent default or other matter. Waiver by City of any one or more of the conditions of performance under this Agreement shall not be construed as waiver of any other condition of performance under this Agreement. The acceptance by the City of the performance of any work or services by Contractor shall not be deemed to be a waiver of any term or condition of this Agreement.

34. SEVERABILITY

If any part of this Agreement is found to be in conflict with applicable laws, such part shall be inoperative, null, and void insofar as it is in conflict with said laws, but the remainder of this Agreement shall continue to be in full force and effect. The invalidity, illegality or unenforceability of any provision of this Agreement shall not render the other provisions invalid, illegal or unenforceable.

35. NOTICES



All notices that are required to be given by one party to the other under this Agreement shall be in writing and shall be deemed to have been given if (1) personally delivered, (2) delivered via email, or (3) enclosed in a properly addressed envelope, postage prepaid, and deposited in a United States Post Office for delivery addressed to the parties as follows:

City: City of Greenfield
City Manager
P.O. Box 127
599 El Camino Real
Greenfield, CA 93927

Contractor: [CONTACT PERSON]
[Street Address]
[City, state and zip code]

Each party may change the address at which it gives notice by giving ten (10) days advance, written notice to the other party.

36. NOTICE TO PROCEED, PROGRESS, COMPLETION

Upon execution of this Agreement by the parties, City shall give Contractor written notice to proceed with the work. Such notice may authorize Contractor to render all of the services contemplated herein, or such portions or phases as may be mutually agreed upon. In the latter event, City shall, in its sole discretion, issue subsequent notices from time to time regarding further portions or phases of the work. Upon receipt of such notices, Contractor shall diligently proceed with the work authorized and complete it within the agreed time period.

37. INDEPENDENT INVESTIGATION

The Contractor agrees and hereby represents it has satisfied itself by its own investigation and research regarding the conditions affecting the work to be done and labor and materials needed, and that its decision to execute this Agreement is based on such independent investigation and research.

38. CONSTRUCTION AND INTERPRETATION

Contractor and City agree and acknowledge that the provisions of this Agreement have been arrived at through negotiation and that each party has had a full and fair opportunity to revise the provisions of this Agreement and to have such provisions reviewed by legal counsel. Therefore, any ambiguities in construing or interpreting this Agreement shall not be resolved against the drafting party. The titles of the various sections are merely informational and shall not be construed as a substantive portion of this Agreement.

39. MISTAKE OF FACT

Each party understands that if any fact with respect to any matter covered by this Agreement is found hereafter to be other or different from the facts now believed by that party to be true, such party expressly accepts and assumes the risk of such possible differences in fact



and agrees that this Agreement shall be in all respects effective and not subject to termination or rescission by reason of any such difference in facts.

40. GOVERNING LAW

The City and Contractor agree that the laws of the State of California shall govern this Agreement. Any suit brought by either party against the other arising out of the performance of this Agreement shall be filed and maintained in the County of Monterey, federal diversity jurisdiction being expressly waived.

41. AUTHORITY TO EXECUTE

The person or persons executing this Contract on behalf of Contractor warrant and represent that they have the authority to execute this Contract on behalf of their agency and further warrant and represent that they have the authority to bind Contractor to the performance of its obligations hereunder.

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

CITY OF GREENFIELD

[NAME OF CONTRACTOR]

By: _____
Susan A. Stanton, ICMA-CM
City Manager

By: _____
[Name]
[Title]

Approved as to form:

By: _____
Bradley W. Sullivan
City Attorney

Attest:

By: _____
Ann Rathbun
City Clerk



**CERTIFICATE OF COMPLIANCE
WITH LABOR CODE § 3700**

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 have complied or will comply with such provisions before commencing the performance of the work of this contract. (Cal. Labor Code §§1860, 1861.)

CONTRACTOR

[Insert Contractor Name]
[Name]
[Title]



EXHIBIT A
Scope of Work

The Scope of work is contained in the following documents, considered attachments to this Contract for Services:

1. Plans & Specifications for the Greenfield Community Park Project as Prepared by Pacific Coast Land Design Dated [REDACTED], including all issued addendums.
2. All provisions of this Contract.
3. All requirements required under Proposition 84, the funding grant for this project, as described herein.



EXHIBIT B
Compensation and Method of Payment

Base Services – Unit Price Contract. City hereby agrees to pay Contractor a Unit Price Contract amount of _____ DOLLARS (\$_____) for the Base Services as identified in Exhibit A, and as further broken down by Bid items in the Bid Sheet on the Contractor's Proposal. Contractor shall invoice City based on a percent completion basis of each task identified in the Base Services of Exhibit A based on the following cost allocation by task. Reallocation of funds from one task to another shall be by written amendment to this Agreement only (Approved Contract Change Order).



EXHIBIT C
Listing of Subcontractors and Key Personnel

As described in the Contractor's Proposal



EXHIBIT D
Items Provided by City

Not Applicable



EXHIBIT E Insurance Requirements

Contractor shall procure and maintain for the duration of the contract and for two years thereafter insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees, or subcontractors.

MINIMUM SCOPE AND LIMIT OF INSURANCE

Coverage shall be at least as broad as:

1. Commercial General Liability (CGL): Insurance Services Office Form CG 00 01 covering CGL on an "occurrence" basis, including products and completed operations, property damage, bodily injury and personal & advertising injury with limits no less than \$2,000,000 per occurrence. If a general aggregate limit applies, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.
2. Automobile Liability: Insurance Services Office Form Number CA 00 01 covering any auto (Code 1), or if no owned autos, hired (Code 8) and non-owned autos (Code 9), with limits no less than \$2,000,000 per accident for bodily injury and property damage.
3. Workers' Compensation insurance as required by the State of California, with Statutory Limits, and Employers' Liability insurance with a limit of no less than \$1,000,000 per accident for bodily injury or disease.
4. Builder's Risk (for construction contracts only) insurance utilizing an "All Risk" (Special Perils) coverage form, with limits equal to the completed value of the project and no coinsurance penalty provisions.
5. Surety Bonds as described below (for construction contracts only).
6. Professional Liability (Errors and Omissions), appropriate to the Contractor's profession, with limits no less than \$1,000,000 per occurrence or claim, and \$2,000,000 policy aggregate.
7. Contractors' Pollution Legal Liability and/or Asbestos Legal Liability and/or Errors and Omissions (for construction contracts only) with limits no less than \$1,000,000 per occurrence or claim, and \$2,000,000 policy aggregate.

If the contractor maintains higher limits than the minimums shown above, the City requires and shall be entitled to coverage for the higher limits maintained by the contractor. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the City.



Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared to and approved by the City. At the option of the City, either: the Contractor shall cause the insurer to reduce or eliminate such deductibles or self-insured retentions as respects the City, its officers, officials, employees, and authorized volunteers; or the Contractor shall provide a financial guarantee satisfactory to the City guaranteeing payment of losses and related investigations, claim administration, and defense expenses.

Other Insurance Provisions

The insurance policies are to contain, or be endorsed to contain, the following provisions:

1. The City, its officers, officials, employees, and authorized volunteers are to be covered as additional insureds on the CGL policy with respect to liability arising out of work or operations performed by or on behalf of the Contractor including materials, parts, or equipment furnished in connection with such work or operations and automobiles owned, leased, hired, or borrowed by or on behalf of the Contractor. General liability coverage can be provided in the form of an endorsement to the Contractor's insurance (at least as broad as ISO Form CG 20 10, CG 11 85 or both CG 20 10 and CG 20 37 forms if later revisions used).
2. For any claims related to this project, the Contractor's insurance coverage shall be primary insurance as respects the City, its officers, officials, employees, and authorized volunteers. Any insurance or self-insurance maintained by the City, its officers, officials, employees, or authorized volunteers shall be excess of the Contractor's insurance and shall not contribute with it.
3. Each insurance policy required by this clause shall provide that coverage shall not be canceled, except with notice to the City.

Builder's Risk (Course of Construction) Insurance (for construction contracts only)

Contractor may submit evidence of Builder's Risk insurance in the form of Course of Construction coverage. Such coverage shall name the City as a loss payee as their interest may appear.

If the project does not involve new or major reconstruction, at the option of the City, an Installation Floater may be acceptable. For such projects, a Property Installation Floater shall be obtained that provides for the improvement, remodel, modification, alteration, conversion or adjustment to existing buildings, structures, processes, machinery and equipment. The Property Installation Floater shall provide property damage coverage for any building, structure, machinery or equipment damaged, impaired, broken, or destroyed during the performance of the Work, including during transit, installation, and testing at the City's site.

Claims Made Policies

If any coverage required is written on a claims-made coverage form:



-
42. The retroactive date must be shown, and this date must be before the execution date of the contract or the beginning of contract work.
 43. Insurance must be maintained and evidence of insurance must be provided for at least five (5) years after completion of contract work.
 44. If coverage is canceled or non-renewed, and not replaced with another claims-made policy form with a retroactive date prior to the contract effective date or start of work date, the Contractor must purchase "extended reporting" period coverage for a minimum of five (5) years after completion of contract work.
 45. A copy of the claims reporting requirements must be submitted to the City for review.
 46. If the services involve lead-based paint or asbestos identification/remediation, the Contractors Pollution Liability policy shall not contain lead-based paint or asbestos exclusions. If the services involve mold identification/remediation, the Contractors Pollution Liability policy shall not contain a mold exclusion, and the definition of Pollution shall include microbial matter, including mold.

Acceptability of Insurers

Insurance is to be placed with insurers with a current A.M. Best rating of no less than A: VII, unless otherwise acceptable to the City.

Waiver of Subrogation

Contractor hereby agrees to waive rights of subrogation which any insurer of Contractor may acquire from Contractor by virtue of the payment of any loss under such insurance. Contractor agrees to obtain any endorsement that may be necessary to affect this waiver of subrogation, provided such waiver of subrogation endorsement is commercially available, but this provision applies regardless of whether or not the City has received a waiver of subrogation endorsement from the insurer.

The Workers' Compensation policy shall be endorsed with a waiver of subrogation in favor of the City for all work performed by the Contractor, its employees, agents and subcontractors.

Verification of Coverage

Contractor shall furnish the City with original certificates and amendatory endorsements, or copies of the applicable insurance language, effecting coverage required by this contract. All certificates and endorsements are to be received and approved by the City before work commences. However, failure to obtain the required documents prior to the work beginning shall not waive the Contractor's obligation to provide them. The City reserves the right to require complete, certified copies of all required insurance policies, including endorsements, required by these specifications, at any time.

Subcontractors



Contractor shall require and verify that all subcontractors maintain insurance meeting all the requirements stated herein, and Contractor shall ensure that City is an additional insured on insurance required from subcontractors. For CGL coverage, subcontractors shall provide coverage with a format least as broad as CG 20 38 04 13.

Surety Bonds (for construction contracts only)

Contractor shall provide the following Surety Bonds or Guarantees:

1. Bid Guarantee – Equal to five percent (5%) of the proposed contract amount in form of bid bond, certified check, or other negotiable instrument as assurance that the bidder shall, upon acceptance of its bid, execute such contractual documents as may be required within the time specified.
2. Performance Bond – Equal to 100 percent of the contract amount executed in connection with the contract to secure fulfillment of all the contractor's obligations under such contract.
3. Payment Bond – Equal to 100 percent of the contract amount executed in connection with the contract to ensure payment as required by law of all persons supplying labor and material in the execution of the work provided for under such contract.
4. Maintenance Bond – Equal to ten percent (10%) of the contract amount executed in connection with the contract to maintain and keep in good repair for a period of two years the improvements provided for under such contract. If the Performance Bond or other warranty provides for a two year or longer warranty period for any item or improvement, a separate Maintenance Bond is not required for any such item or improvement.

Any bonds provided under this Agreement shall be duly executed by a responsible corporate surety, authorized to issue such bonds in the State of California.

Special Risks or Circumstances

City reserves the right to modify these requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage, or other special circumstances.



EXHIBIT F
Proposition 84 Contract Requirements



EXHIBIT F
Proposition 84 Contract Requirements
Proposition 84 Bond Act Grants

The Contractor shall, in addition to all other requirements of this contract, provide and perform the following:

Prop 84 Reporting Info required with each invoice:

The Contractor shall provide the following Information Report with each payment Request:

- Percentage of Project Complete: _____
- Estimated Date of Project Completion: _____
- On time? (no anticipated delays) _____ {Yes/No} if no, explain.

- Within budget? _____ {Yes/No} if no, explain.

- Describe any progress or completed work since the last Status Report.

- What are the next steps, when will they occur, and are there any issues?

Project Sign

GRANTEES are required to post a sign or plaque at the PROJECT site to acknowledge the public's support of the Bond Act. The exact language and logo requirements of the sign are available at www.parks.ca.gov/grants. Click on the "Proposition 84 – 2006 Safe Drinking Water Bond Act" link. A copy of the Sign Requirements are attached.

- **Size, Shape, and Material:** With exception to the logo, there is no minimum or maximum size or shape requirement for the sign. Sign materials must be resistant to weather and graffiti.
- **Location:** Must be located where it can be easily read by the public.
- **Duration:** The sign must be in place by PROJECT COMPLETION, and must remain for four years after PROJECT COMPLETION.



-
- **Sign Cost:** The contractor shall provide a detailed cost summary of this sign, including materials, fabrication and installation.

Labor Compliance

The contractor shall be subject to close monitoring by a qualified and experienced Labor Compliance Inspector that is on the State Labor Relations Department list of approved vendors, and is employed by the City. The Contractor shall cooperate fully with this compliance inspector and respond to any and all requests for information as necessary to demonstrate compliance with State Law. Failure to comply will result in actions as permitted by State law which may include withholding of payments, reporting non-compliance to the State of California, or other actions of recourse as required by State Law.

Project and Contract Audit

The Contractor agrees to the following:

Prop. 84 Grant Projects are subject to audit by State Department of Parks and Recreation (DPR). The contractor agrees to cooperate, if requested in writing within 5 years of project completion to provide complete information of the audit checklist Below. All PROJECT records must be retained for five years after final payment is received.

The Contractor must provide the following when an audit date and time has been confirmed by DPR: All PROJECT records, including the source documents and cancelled warrants, books, papers, accounts, time sheets, or other records listed in the Audit Checklist or requested by DPR.

Contractor Audit Checklist:

- Construction contract agreement
- CONTRACT bonds (bid, performance, payment)
- CONTRACT change orders
- Contractor's progress billings
- Payments to contractor (cancelled checks/warrants, bank statements and EFT receipts, etc.)
- Stop Notices (filed by sub-contractors and release if applicable)
- Liquidated damages (claimed against the contractor)
- Notice of completion (recorded)
- **FORCE ACCOUNT LABOR**
 - Authorization/work order identifying project
 - Daily time sheets signed by employee and supervisor
 - Hourly rate (salary schedules/payroll register)
 - Fringe benefits (provide breakdown)



PROPOSITION 84 SIGN GUIDELINES

Authority:

All grant Projects funded by the “The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006” (Prop. 84) must include a posted sign acknowledging the source of the funds following guidelines developed by the California Natural Resources Agency.

Purpose:

Installation of signs at all Project sites is required to acknowledge the public’s support of the 2006 Parks and Water Bond Act and promote the benefits provided by Bond fund assistance.

Requirement:

All Grantees are required to post a sign at the Project site. The sign must be available for the final inspection of the Project. All signs must include the universal logo.

There is no minimum or maximum size for the sign (other than the minimum size for the logo) as long as the sign contains the required wording (see language below).

Language for Sign:

All signs will contain the minimum language below:

(Description of Project)

Another Project to Improve California Parks funded by the 2006 Clean Water Bond Act

Lisa Ann L. Mangat, Director, California Department of Parks and Recreation

John Laird, Secretary for California Natural Resources Agency

Edmund G. Brown, Jr., Governor

The name of the director of the local agency or other governing body also may be added. The sign may also include the names (and/or logos) of other partners, organizations, individuals and elected representatives as deemed appropriate by those involved in the Project.

Universal Logo:

All signs will contain a universal logo that will be equated with the 2006 Parks and Water Bond Act statewide. The logo will be on a template, available at www.parks.ca.gov/grants.

The Universal logo must be mounted in an area to maximize visibility and durability.

The logo must be a minimum of 1’x1’. Exceptions are permitted where these dimensions may not be appropriate.



Sign Construction:

All materials used shall be **durable and resistant to the elements and graffiti**. The California Department of Parks and Recreation and California Department of Transportation standards can be used as a guide for gauge of metal, quality of paints used, mounting specifications, etc.

Sign Duration:

Project Signs must be in place for a lengthy period of time, preferably for a **minimum of two years** for all projects and four years for projects over \$750,000.

Sign Cost:

The cost of the sign(s) is an eligible Project cost. More permanent signage is also encouraged; e.g. bronze memorials mounted in stone at trailheads, on structures etc.

Appropriateness of Signs:

For projects where the required sign may be out of place or where affected by local sign ordinances, the Project Officer in consultation with the Grantee may authorize a sign that is appropriate to the project in question. Alternate signage must be clearly recognizable as a 2006 Parks and Water Bond project.

Further Questions:

The Grantee (City) should consult with the Project Officer to resolve any sign issues.



EXHIBIT G
Federal Procurement Requirements

Not Applicable

B2 CALIFORNIA BIDDER'S BOND

BOND NO. _____

AMOUNT: \$ _____

KNOW ALL MEN BY THESE PRESENTS, that _____

_____ hereinafter called the PRINCIPAL, and _____

_____ a corporation duly organized under the laws of the State of _____.

_____ having its principal place of business at _____

_____ in the State of _____.

And authorized to do business in the State of California (hereinafter called the SURETY). As SURETY, are held and firmly bound unto _____

Hereinafter called the OBLIGEE, in the sum of _____

_____ Dollars (\$ _____)

for the payment of which we bind ourselves, the said PRINCIPAL and the said SURETY, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS BOND IS SUCH THAT:

WHEREAS, the PRINCIPAL is herewith submitting his or its Bid Proposal for

said Bid Proposal, by reference thereto, being hereby made a part hereof.

Now, therefore, if said Bid Proposal shall be rejected, or in the alternate, if said Bid Proposal shall be accepted by the OBLIGEE and the PRINCIPAL shall sign and deliver a Contract, in the form of Contract attached hereto and shall execute and deliver Performance and Payment Bonds in the forms attached hereto (all completed in accordance with said Bid Proposal), and shall in all other respects perform the agreement created by the acceptance of said Bid Proposal, or in the event of the failure of the PRINCIPAL to enter into such Contract and give such bond, if the PRINCIPAL shall pay to the OBLIGEE the difference, not to exceed the penalty hereof, between the amount specified in said Bid Proposal and the amount for which OBLIGEE may legally contract with another party to perform the work covered by said Bid Proposal, if the latter amount be in excess of the former.

Then, this obligation shall be null and void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the SURETY for any and all default of the PRINCIPAL hereunder shall be the amount of this obligation as herein stated.

The SURETY, for value received, hereby stipulates and agrees that the obligations of said SURETY and its Bond shall be in no way impaired or affected by any extension of the time within which the OBLIGEE may Accept such Bid Proposal, and said SURETY does hereby waive notice of any such extension.

IN WITNESS THEREOF, the above-bounded parties have executed this instrument under their several seals, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Signed and sealed this _____ day of _____ J 20_____.

Principal

By _____

SURETY

By _____
Attorney-in-Fact

The rate of premium on this bond is _____ per thousand.

Total amount of premium charged \$ _____.

END OF SECTION

B3 CALIFORNIA PAYMENT BOND

BOND NO. _____

AMOUNT: \$ _____

KNOW ALL MEN BY THESE PRESENTS, that _____

_____ hereinafter called the PRINCIPAL, and _____

_____ a corporation duly organized under the laws of the State of _____.

_____ hereinafter called the SURETY, and authorized to transact business within the State of California, as SURETY,

_____ are held and firmly bound unto _____

as OWNER (Obligee), in the sum of:

_____ Dollars (\$ _____)

lawful money of the United States of America, for the payment of which, well and truly be made to the OWNER, the CONTRACTOR and the SURETY bind themselves and each of their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents as follows:

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, the CONTRACTOR has executed and entered into a certain Contract hereto, attached, with the OWNER, dated _____, 20_____, for

That, if said CONTRACTOR, or his heirs, executors, administrators, successors or assigns, or subcontractors, shall fail to pay any of the persons named in Section 3181 of the Civil Code of the State of California, or for any amounts required to be deducted, withheld, and paid over to the Unemployment Development Department with respect to work or labor performed by any such claimant, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the CONTRACTOR and his subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with respect to such work and labor that the Surety or Sureties will pay for the same, in an aggregate amount not exceeding the sum specified in this bond, and also, in case suit is brought upon the bond, a reasonable attorney's fee, to be fixed by the Court in accordance with Section 3250 of the Civil Code of the State of California.

That, this bond shall inure to the benefit of any of the persons named in Section 3181 of the Civil Code of the State of California so as to give a right of action to such persons or their assigns in any suit brought upon this bond.

IN WITNESS THEREOF, the above-bounded parties have executed this instrument under their several seals, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Signed and sealed this _____ day of _____ J 20_____.

CONTRACTOR

By _____(SEAL)

Attest

SURETY

By _____(SEAL)

Attest

APPROVED AS TO FORM: _____, 20_____

OWNER

The rate of premium on this bond is _____ per thousand.

Total amount of premium charged \$ _____.

END OF SECTION

SECTION C - GENERAL CONDITIONS

These General Conditions contain contractual-legal Articles that establish the requirements and conditions governing responsibility, policy, and procedures that apply during the construction and warranty period. This part of the Contract Documents is preprinted. Any modifications to the following Articles that are special to the project under consideration will be made in the Supplementary Conditions. Requirements and conditions that have special significance to the Contract for the contemplated work on this project are as set forth in the remaining sections of these Contract Documents.

C1 DEFINITIONS

Wherever in the Contract Documents the following terms are used, the intent and meaning shall be interpreted as follows:

1. AS APPROVED

The words "as approved", unless otherwise qualified, shall be understood to be followed by the words "by the Engineer".

2. AS SHOWN, AND AS INDICATED

The words "as shown" and "as indicated" shall be understood to be followed by the words "on the Drawings".

3. BIDDER

The person or persons, partnership, firm, or corporation submitting a Proposal for the work contemplated.

4. CONTRACT

The "Contract" is the written agreement covering the performance of the work and the furnishing of labor, materials, incidental services, tools, and equipment in the construction of the work. It includes supplemental agreements amending or extending the work contemplated and which may be required to complete the work in a substantial and acceptable manner. Supplemental agreements are written agreements covering alterations, amendments, or extensions to the Contract and include Contract Change Orders.

5. CONTRACT DOCUMENTS

The "Contract Documents" consist of the Bidding Requirements, Contract forms, Conditions of the Contract, the Specifications, and the Drawings, including all modifications thereof incorporated into the Documents before their execution, and including all other requirements incorporated by specific reference thereto. These form the Contract.

6. CONTRACTOR

The person or persons, partnership, firm, or corporation who enters into the Contract awarded him by the Owner.

7. DAYS

Unless otherwise specifically stated, the terms "days" will be understood to mean calendar days.

8. DRAWINGS

The term "Drawings" refers to the official Drawings, profiles, cross sections, elevations, details, and other working drawings and supplementary drawings, or reproductions thereof, signed by the Engineer, which show the locations, character, dimensions, and details of the work to be performed. Drawings may either be bound in the same book as the balance of the Contract Documents or bound in separate sets, and are a part of the Contract Documents, regardless of the method of binding.

9. ENGINEER

The person or organization identified as such in the Contract Documents. The term "Engineer" means the Engineer or his authorized representative.

10. NOTICE

The term "notice" or the requirement to notify, as used in the Contract Documents or applicable state or federal statutes, shall signify a written communications delivered in person or by certified or registered mail to the individual, or to a member of the firm, or to an officer of the corporation for whom it is intended. Certified or registered mail shall be addressed to the last business address known to him who gives the notice.

11. OR EQUIVALENT

The term "or equivalent" (or the term "or equal") shall be understood to indicate that the "equivalent" product is the same or better than the product named in function, performance, reliability, quality, and general configuration. Determination of equality in reference to the project design requirements will be made by the Engineer. Such "equivalent" products shall not be purchased or installed by the Contractor without the Engineer's written approval.

12. OWNER

The person, organization, or public body identified as such in the Contract Documents.

13. PLANS (See DRAWINGS)

14. SPECIFICATIONS

The term "Specifications" refers to the terms, provisions, and requirements contained herein. Where standard specifications, such as those of ASTM, AASHTO, etc., have been referred to, the applicable portions of such standard specifications shall become a part of these Contract Documents.

15. SUBSTANTIAL COMPLETION

"Substantial completion" shall be that degree of completion of the project or a defined portion of the project, sufficient to provide the Owner, at his discretion, the full-time use of the project or defined portion of the project for the purposes for which it was intended.

16. WORK

The word "work" within these Contract Documents shall include all material, labor, tools, and all appliances, machinery, transportation, and appurtenances necessary to perform and complete the Contract, and such additional items not specifically indicated or described which can be reasonably inferred as belonging to the item described or indicated and as required by good practice to provide a complete and satisfactory system or structure. As used herein, "provide" shall be understood to mean "provide complete in-place", that is, "furnish and install".

C2 CONTRACT DOCUMENTS

17. INTENT OF CONTRACT DOCUMENTS

The Contract Documents are complementary, and what is called for by one shall be as binding as if called for by all. The intent of the Documents is to include all work (except specific items to be furnished by the Owner) necessary for completion of the Contract. Materials or worked described in words which so applied have a well known technical and trade meaning shall be held to refer to such recognized standards.

18. DISCREPANCIES AND OMISSIONS

Any discrepancies or omissions found in the Contract Documents shall be reported to the Engineer immediately. The Engineer will clarify discrepancies or omissions, in writing, within a reasonable time.

In resolving inconsistencies among two or more sections of the Contract Documents, precedence shall be given in the following order:

- A. CONTRACT
- B. SUPPLEMENTARY CONDITIONS
- C. INSTRUCTIONS TO BIDDERS
- D. GENERAL CONDITIONS
- E. SPECIFICATIONS
- F. DRAWINGS

Figure dimensions on Drawings shall take precedence over scale dimensions; detailed Drawings shall take precedence over general Drawings.

19. ALTERATIONS

The Owner, without invalidating the Contract, may order changes in the work within the general scope of the Contract by altering, adding to, or deducting from the work, the Contract being adjusted accordingly. All such work shall be executed under the conditions of the original Contract, except as specifically adjusted at the time of ordering such change.

In giving instructions, the Engineer may order minor changes in the work not involving extra cost and not inconsistent with the purposes of the project, but otherwise, except in an emergency endangering life or property, additions or deductions from the work shall be performed only in pursuance of an approved Change Order from the Owner, signed or countersigned by the Engineer, or a Change Order from the Engineer stating that the Owner has authorized the deduction, addition, or change, and no claim for additional payment shall be valid unless so ordered.

If the work is reduced by alterations, such actions shall not constitute a claim for damages based on loss of anticipated profits.

20. VERIFICATION OF CONTRACT DOCUMENTS

The Contractor shall thoroughly examine and become familiar with all of the various parts of these Contract Documents and determine the nature and location of the work, the general and local conditions, and all other matters which can in any way affect the work under this Contract. Failure to make an examination necessary for this determination shall not release the Contractor from the obligations of this Contract. The Contractor warrants that no verbal agreement or conversation with any officer, agent, or employee of the Owner, or with the Engineer either before or after the execution of this Contract, has affected or modified any of the terms or obligations herein contained.

21. DOCUMENTS TO BE KEPT ON THE JOBSITE

The Contractor shall keep one copy of the Contract Documents on the jobsite, in good order, available to the Engineer and to his representatives.

22. ADDITIONAL CONTRACT DOCUMENTS

The Engineer will furnish to the Contractor on request and free of charge, six copies of the Contract Documents and six sets of full-size Drawings. Additional copies of Contract Documents or Drawings may be obtained on request by paying the actual cost of reproducing the Contract Documents or Drawings.

23. OWNERSHIP OF DRAWINGS

All Drawings, Plans, Specifications, and copies thereof furnished by the Engineer are his property. They are not to be used on other work and, with the exception of the signed Contract set, are to be returned to him on request at the completion of the work. Any reuse of these materials without specific written verification or adaptation by the Engineer will be at the risk of the user and without liability or legal expense to the Engineer.

C3 THE ENGINEER

24. AUTHORITY OF THE ENGINEER

The Engineer shall be the Owner's representative during the construction period. His authority and responsibility shall be limited to the provisions set forth in these Contract Documents. The Engineer shall have the authority to reject work and materials whenever such rejection may be necessary to ensure execution of the Contract in accordance with the intent of the Contract Documents.

25. DUTIES AND RESPONSIBILITIES OF THE ENGINEER

The Engineer will make periodic visits to the site of the project to observe the progress and quality of the work and to determine, in general, if the work is proceeding in accordance with the intent of the Contract Documents. He shall not be required to make comprehensive or continuous inspections to check quality or quantity of the work, and he shall not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the work. Visits and observations made by the Engineer shall not relieve the Contractor of his obligation to conduct comprehensive inspections of the work and to furnish materials and perform acceptable work, and to provide adequate safety precautions, in conformance with the intent of the Contract.

The Engineer will make decisions, in writing, on all claims of the Owner or the Contractor arising from interpretation or execution of the Contract Documents. Such decisions shall be necessary before the Contractor can receive additional money under the terms of the Contract. Changes in work ordered by the Engineer will be made in compliance with Article ALTERATIONS.

One or more inspectors may be assigned to observe the work and to act in matters of construction under this Contract. It is understood that such inspectors shall have the power to issue instructions and make decisions within the limitations of the authority of the Engineer. Such inspection shall not relieve the Contractor of his obligations to conduct comprehensive inspections of the work and to furnish materials and perform acceptable work, and to provide adequate safety precautions, in conformance with the intent of the Contract.

26. REJECTED MATERIAL

Any material condemned or rejected by the Engineer or his authorized inspector because of nonconformity with the Contract Documents shall be removed at once from the vicinity of the work by the Contractor at his own expense, and the same shall not be used on the work.

27. UNNOTICED DEFECTS

Any defective work or material that may be discovered by the Engineer before the final acceptance of work, or before final payment has been made, or during the guarantee period, shall be removed and replaced by work and materials which shall conform to the provisions of the Contract Documents. Failure on the part of the Engineer to condemn or reject bad or inferior work or materials shall not be construed to imply acceptance of such work or materials. The Owner shall reserve and retain all of its rights and remedies at law against the Contractors and its Surety for correction of any and all latent defects discovered after the guarantee period.

28. RIGHT TO RETAIN IMPERFECT WORK

If any part or portion of the work done or materials furnished under this Contract shall prove defective and not in accordance with the Drawings and Specifications, and if the imperfection in the same shall not be of sufficient magnitude or importance as to make the work dangerous or unsuitable, or if the removal of such work will create conditions which are dangerous or undesirable, the Owner shall have the right and authority to retain such work but shall make such deductions in the final payment therefore as may be just and reasonable.

29. LINES AND GRADES

If applicable, Lines and grades shall be established as provided in the Supplementary Conditions. All stakes, marks, and other information shall be carefully preserved by the Contractor, and in case of their careless or unnecessary destruction or removal by him or his employees, such stakes, marks, and other information will be replaced by the Engineer at the Contractor's expense.

30. SHOP DRAWING SUBMITTAL PROCEDURE

The Contractor shall submit, in quintuplicate, to the Engineer for his review, such shop drawings, electrical diagrams, and catalog cuts for fabricated items and manufactured items (including mechanical and electrical equipment) required for the construction. Shop drawings shall be submitted in sufficient time to allow the Engineer not less than 20 regular working days for examining the shop drawings.

These shop drawings shall be accurate, distinct, and complete, and shall contain all required information, including satisfactory identification of items, units, and assemblies in relation to the Contract Drawings and Specifications.

Unless otherwise approved by the Engineer, shop drawings shall be submitted only by the Contractor, who shall indicate by a signed stamp on the shop drawings, or other approved means, that he (the Contractor) has checked the shop drawings, and that the work shown is in accordance with Contract requirements and has been checked for dimensions and relationship with work of all other trades involved.

The practice of submitting incomplete or unchecked shop drawings for the Engineer to correct or finish will not be acceptable, and shop drawings which, in the opinion of the Engineer, clearly indicate that they have not been checked by the Contractor will be considered as not complying with the intent of the Contract Documents and will be returned to the Contractor for resubmittal in the proper form.

When the shop drawings have been reviewed by the Engineer, two sets of submittals will be returned to the Contractor appropriately stamped. If major changes or corrections are necessary, the shop drawing may be rejected and one set will be returned to the Contractor with such changes or corrections indicated, and the Contractor shall correct and resubmit the shop drawings in quadruplicate, unless otherwise directed by the Engineer. No changes shall be made by the Contractor to resubmitted shop drawings other than those changes indicated by the Engineer, unless such changes are clearly described in a letter accompanying the resubmitted shop drawings.

The review of such shop drawings and catalog cuts by the Engineer shall not relieve the Contractor from responsibility for correctness of dimensions, fabrication details, and space requirements, or for deviations from the Contract Drawings or Specifications, unless the Contractor has called attention to such deviations in

writing by a letter accompanying the shop drawings and the Engineer approves the change or deviation in writing at the time of submission; nor shall review by the Engineer relieve the Contractor from the responsibility for errors in the shop drawings. When the Contractor does call such deviations to the attention of the Engineer, the Contractor shall state in his letter whether or not such deviations involve any deduction or extra cost adjustment.

Submittals required for this project include: See Section D2.3 - Scope of Work.

31. DETAIL DRAWINGS AND INSTRUCTIONS

The Engineer will furnish, with reasonable promptness, additional instructions by means of Drawings or otherwise, if, in the Engineer's opinion, such are required for the proper execution of the work. All such Drawings and instructions will be consistent with the Contract Documents, true developments thereof, and reasonable inferable therefrom.

C4 THE CONTRACTOR AND HIS EMPLOYEES

32. CONTRACTOR, AN INDEPENDENT AGENT

The Contractor shall perform all work under this Contract as an Independent Agent and shall not be considered as an agent of the Owner, nor shall the Contractor's subcontractors or employees be subagents of the Owner.

33. SUBCONTRACTING

The Contractor shall not employ any subcontractors that are not properly licensed. Changes of subcontractors listed with the Proposal shall be made only with the approval of the Owner.

The Contractor agrees that he is as fully responsible to the Owner for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him. Nothing contained in the Contract Documents shall create any contractual relation between any subcontractor and the Owner.

34. INSURANCE AND LIABILITY

SEE EXHIBIT E

35. INDEMNITY

SEE EXHIBIT E

36. TAXES AND CHARGES

The Contractor shall pay all state and local sales and use taxes on items, and in a manner as required by the laws and statutes of the State of California and its political subdivisions. The Contractor shall withhold and pay any and all withholding taxes, whether State or Federal, and pay all Social Security charges and also all State Unemployment Compensation charges, and pay or cause to be withheld, as the case may be, any and all taxes, charges, or fees, or sums whatsoever, which are now or may hereafter be required to be paid or withheld under any laws.

37. ORDINANCES, PERMITS, AND LICENSES

The Contractor shall keep himself fully informed of all local ordinances, as well as state and federal laws, which in any manner affect the work herein specified. The Contractor shall at all times comply with said ordinances, laws, and regulations, and protect and indemnify the Owner and its officers and agents against any claim or liability arising from or based on the violation of any such laws, ordinances, or regulations. All permits, licenses, and inspection fees necessary for prosecution and completion of the work shall be secured and paid for by the Contractor, unless otherwise specified.

38. SUPERINTENDENCY

The Contractor shall keep on the work, during its progress, competent supervisory personnel. The Contractor shall designate, in writing, before starting work, an authorized representative who shall have complete authority to represent and to act for the Contractor. The Contractor shall give efficient supervision to the work, using his best skill and attention. The Contractor shall be solely responsible for all construction means, methods, techniques, and procedures, and for providing adequate safety precautions and coordinating all portions of the work under Contract.

39. RECEPTION OF ENGINEER'S DIRECTIONS

The superintendent, or other duly authorized representative of the Contractor, shall represent the Contractor in all directions given to him by the Engineer. Such directions of major importance will be confirmed in writing. Any direction will be so confirmed, in each case, on written request from the Contractor.

40. SANITATION

Sanitary conveniences conforming to state and local codes shall be erected and maintained by the Contractor at all times while workers are employed on the work. The sanitary convenience facilities shall be as approved by the Engineer.

41. EMPLOYEES

The Contractor shall employ only competent, skillful workers to do the work, and whenever any person shall appear to be incompetent or to act in a disorderly or improper manner, such person shall be removed from the work. SEE CONTRACT

42. REQUIREMENTS OF CALIFORNIA LAW FOR PUBLIC CONTRACTS

When the Contract Documents concern public works of the state or any county, municipality, or political subdivision created by its laws, the applicable statutes of the State of California shall apply. All parties to this Contract shall determine the contents of all applicable statutes and comply with their provisions throughout the performance of the Contract.

A. APPRENTICES

Section 1773.3 of the California Labor Code requires the Owner to notify the Division of Apprenticeship Standards of award of public work contracts which fall within the jurisdiction of Section 1777.5 of the Labor code.

The Contractor's attention is directed to Sections 1777.5, 1777.6, and 1777.7 of the California Labor Code and Title 8, California Administrative Code Section 200 et seq concerning employment of apprentices by the Contractor and his subcontractors. To insure compliance and complete understanding of the law regarding apprentices, and specifically the required ratio thereunder, the Contractor (and subcontractors) should, where some question exists, contact the Division of Apprenticeship Standards prior to commencement of the work. Responsibility for compliance with this paragraph 42A lies solely with the Contractor. The Owner's policy is to encourage the employment and training of apprentices on its construction contracts as may be permitted under local apprenticeship standards.

In general, Section 1777.5 requires that the Contractor and subcontractors follow specific procedures to determine the number of apprentices that must be employed and, under certain conditions, to contribute to funds established for administration of apprenticeship programs.

Excerpts from the California Labor Code and other information regarding the employment of apprentices on public work may be obtained from the Division of Apprenticeship Standards, 455 Golden Gate Avenue, San Francisco, California or one of its branch offices.

B. LABOR DISCRIMINATION AND UNLAWFUL EMPLOYMENT PRACTICES

Attention is directed to the Section 1735 of the Labor Code which states:

"No discrimination shall be made in the employment of persons upon public works because of the race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status, or sex of such persons, except as provided in Section 12940 of the California Government Code, and every contractor for public works violating this section is subject to all the penalties imposed for violation of this chapter."

Attention is also directed to Section 12940 of the California Government Code which, although not specifically concerned with public works contracts, enumerates unlawful employment practices applicable to all employers in the State of California.

C. HOURS OF LABOR

Eight hours' labor constitutes a legal day's work. The Contractor shall forfeit, as penalty to the Owner, \$25 for each workman employed in the execution of the Contract, by him or by any subcontractor under him, for each calendar day during which any workman is required or permitted to labor more than 8 hours in violation of the provisions of the Labor Code and, in particular, Section 1810 to Section 1815 thereof, inclusive.

D. PREVAILING WAGES AND PAYROLL RECORDS

SEE CONTRACT.

E. ASSIGNMENT OF CLAIMS

California Government Code Section 4551 requires that the following provision be included in public works contracts:

"In entering into a public works contract or a 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 the 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."

F. TRENCH SAFETY PLAN

In accordance with Section 6705 of the California Labor Code, for trenches 5 feet or more in depth, the Contractor shall submit to and receive from the Owner the acceptance of a detailed plan showing design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazards of caving ground. Such plan shall be submitted at least 5 days before the Contractor intends to begin work on the trenches.

If such plan varies from the shoring system standards established by the Construction Safety Orders, the plan shall be prepared by a registered civil or structural engineer.

Nothing herein shall be deemed to allow the use of shoring, sloping, or protective system less effective than that required by the Construction Safety Orders of the Division of Industrial Safety.

43. EXCAVATION OR TRENCHING PERMIT

For trenches or excavation 5 feet or deeper, the Contractor shall obtain from the Division of Industrial Safety a permit authorizing such construction.

44. SAFETY

The Contractor shall be solely and completely responsible for conditions of the jobsite, including safety of all persons (including employees) and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours. Safety provisions shall conform to U.S. Department of Labor (OSHA), the State Occupational Safety and Health Act, and all other applicable federal, state,

county, and local laws, ordinances, codes, the requirements set forth below, and any regulations that may be detailed in other parts of these Documents. Where any of these are in conflict, the more stringent requirement shall be followed. The Contractor's failure to thoroughly familiarize himself with the aforementioned safety provisions shall not relieve him from compliance with the obligations and penalties set forth herein.

The Contractor shall develop and maintain for the duration of this Contract, a safety program that will effectively incorporate and implement all required safety provisions. The Contractor shall appoint an employee who is qualified and authorized to supervise and enforce compliance with the safety program.

The duty of the Engineer to conduct construction review of the Contractor's performance is not intended to include a review or approval of the adequacy of the Contractor's safety supervisor, the safety program, or any safety measures taken in, on, or near the construction site.

The Contractor, as a part of his safety program, shall maintain at his office or other well-known place at the jobsite, safety equipment applicable to the work as prescribed by the aforementioned authorities, all articles necessary for giving first-aid to the injured, and shall establish the procedure for the immediate removal to a hospital or a doctor's care of persons (including employees) who may be injured on the jobsite.

If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the Engineer and the Owner. In addition, the Contractor must promptly report in writing to the Engineer all accidents whatsoever arising out of, or in connection with, the performance of the work whether on, or adjacent to, the site, giving full details and statements of witnesses.

If a claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the Engineer, giving full details and statements of witnesses.

If a claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the Engineer, giving full details of the claim.

45. CONTRACTOR'S TOOLS AND EQUIPMENT

The Contractor's tools and equipment used on the work shall be furnished in sufficient quantity and of a capacity and type that will safely perform the work specified, and shall be maintained and used in a manner that will not create a hazard to persons or property, or cause a delay in the progress of the work.

46. PROTECTION OF WORK AND PROPERTY

The Contractor shall at all times safely guard the Owner's property from injury or loss in connection with this Contract. The Contractor shall at all times safely guard and protect from damage his own work, and that of adjacent property (as provided by law and the Contract Documents). All passageways, guard fences, lights, and other facilities required for protection by state or municipal laws and regulations and local conditions, must be provided and maintained.

The Contractor shall protect his work and materials from damage due to the nature of the work, the elements, carelessness of other Contractors, or from any cause whatever until the completion and acceptance of the work. All loss or damages arising out of the nature of the work to be done under these Contract Documents, or from any unforeseen obstruction or defects which may be encountered in the prosecution of the work, or from the action of the elements, shall be sustained by the Contractor.

47. RESPONSIBILITY OF CONTRACTOR TO ACT IN EMERGENCY

In case of an emergency which threatens loss or injury of property, and/or safety of life, the Contractor shall act, without previous instructions from the Owner or Engineer, as the situation may warrant. The Contractor shall notify the Engineer thereof immediately thereafter. Any claim for compensation by the Contractor,

together with substantiating documents in regard to expense, shall be submitted to the Owner through the Engineer and the amount of compensation shall be determined by agreement.

48. MATERIALS AND APPLIANCES

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and other facilities necessary for the execution and completion of the work.

Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of good quality. The Contractor, shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

In selecting and/or approving equipment for installation in the project, the Owner and Engineer assume no responsibility for injury or claims resulting from failure of the equipment to comply with applicable national, state, and local safety codes or requirements, or the safety requirements of a recognized agency, or failure due to faulty design concepts, or defective workmanship and materials.

49. CONTRACTORS' AND MANUFACTURERS' COMPLIANCE WITH STATE SAFETY, OSHA, AND OTHER CODE REQUIREMENTS

The completed work shall include all necessary permanent safety devices, such as machinery guards and similar ordinary safety items required by the state and federal (OSHA) industrial authorities and applicable local and national codes. Further, any features of the work (including Owner-select equipment) subject to such safety regulations shall be fabricated, furnished, and installed in compliance with these requirements. Contractors and manufacturers of equipment shall be held responsible for compliance with the requirements included herein. Contractors shall notify all equipment suppliers and subcontractors of the provisions of this Article.

50. SEISMIC LOADING DESIGN PROVISIONS

Machinery, equipment, and components such as tanks, piping, and electrical panels, including their supports and anchorages, designed by manufacturers or suppliers, shall be designed in accordance with the provisions of the latest edition of the Uniform Building Code to withstand seismic loads in addition to other loads. Design shall be performed by a licensed professional engineer familiar with seismic design. Submittals shall be certified, by the Design Engineer, that designs are in conformance with the Uniform Building Codes and that all applicable loads, including seismic, have been designed for.

51. SUBSTITUTION OF MATERIALS

Except for Owner-selected equipment items, and items where no substitution is clearly specified, whenever any material, article, device, product, fixture, form, type of construction, or process is indicated or specified by patent or proprietary name, by name of manufacturer, or by catalog number, such specifications shall be deemed to be used for the purpose of establishing a standard of quality and facilitating the description of the material or process desired. This procedure is not to be construed as eliminating from competition other products of equal or better quality by other manufacturers where fully suitable in design, and shall be deemed to be followed by the words "or equivalent". The Bidder may, in such cases, for a period of not less than 35 days after award of the contract, submit complete data to the Engineer for consideration for another material, type, or process which shall be substantially equivalent in every respect to that so indicated or specified. Substitute materials shall not be used unless approved in writing. The Owner or his authorized agent will be the sole judge of the substituted article or material.

52. TESTS, SAMPLES, AND INSPECTIONS

The Contractor shall furnish, without extra charge, the necessary test pieces and samples, including facilities and labor for obtaining the same, as requested by the Engineer. When required, the Contractor shall furnish

certificates of tests of materials and equipment made at the point of manufacture by a recognized testing laboratory.

The Owner, Engineer, and authorized government agents and their representatives shall at all times be provided safe access to the work wherever it is in preparation or progress, and the Contractor shall provide facilities for such access and for inspection, including maintenance of temporary and permanent access.

If the Specifications, the Engineer's instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give timely notice of its readiness for inspection. Inspections to be conducted by the Engineer will be promptly made, and where practicable, at the source of supply. If any work should be covered up without approval or consent of the Engineer, it shall, if required by the Engineer, be uncovered for examination at the Contractor's expense.

Reexamination of questioned work may be ordered by the Engineer, and, if so ordered, the work shall be uncovered by the Contractor. If such work is found to be in accordance with the Contract Documents, the Owner will pay the cost of reexamination and replacement. If such work is found to be not in accordance with the Contract Documents, the Contractor shall correct the defective work, and the cost of reexamination and correction of the defective work shall be paid by the Contractor.

53. ROYALTIES AND PATENTS

The Contractor shall pay all royalty and license fees, unless otherwise specified. The Contractor shall defend all suits or claims for infringement of any patent rights and shall save the Owner and the Engineer harmless from loss on account thereof.

54. CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

If the work should be stopped under an order of any court or other public authority for a period of more than 3 months, through no act or fault of the Contractor or of anyone employed by him, or if the Engineer should fail to issue any estimate for payment within 15 days after it is due, or if the Owner should fail to pay the Contractor within 30 days after the time specified in Article PARTIAL PAYMENTS, any sum certified by the Engineer, then the Contractor may, upon 15 days' written notice to the Owner and the Engineer, stop work or terminate this Contract and recover from the Owner payment for all work executed and any loss sustained upon any plant or material and reasonable profit, unless said default has been remedied within said time.

55. CORRECTION OF DEFECTIVE WORK FOUND DURING WARRANTY PERIOD

The Contractor hereby agrees to make, at his own expense, all repairs or replacements necessitated by defects in materials or workmanship, supplied under terms of this Contract, and pay for any damage to other works resulting from such defects, which become evident within 1 year after the date of final acceptance of the work or within 1 year after the date of substantial completion established by the Engineer for specified items of equipment, or within such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents. The Contractor further assumes responsibility for a similar guarantee for all work and materials provided by subcontractors or manufacturers of packaged equipment components. The effective date for the start of the guarantee or warranty period for equipment qualifying as substantially complete is defined in Article SUBSTANTIAL COMPLETION, and Article SUBSTANTIAL COMPLETION DATE, in these General Conditions. The Contractor also agrees to hold the Owner harmless from liability of any kind arising from damage due to said defects.

The Contractor shall make all repairs and replacements promptly upon receipt of written order for same from the Owner. If the Contractor fails to make the repairs and replacements promptly, the Owner may do the work, and the Contractor and his Surety shall be liable for the cost thereof. Any additional requirements for the project relative to correction of defective work after final acceptance are set forth in the Supplementary Conditions.

C5 PROGRESS OF THE WORK

56. BEGINNING OF THE WORK

Before work shall be started and materials ordered, the Contractor shall meet and consult with the Owner and/or Engineer relative to materials, equipment, and all arrangements for prosecuting the work.

57. SCHEDULES AND PROGRESS REPORTS

Prior to starting the construction, the Contractor shall prepare and submit to the Engineer for review, a progress schedule showing approximately the dates on which each part or division of the work is expected to be started and finished. The progress schedule shall be brought up to date and submitted to the Engineer at the end of each month or at such other times the Engineer may request.

The Contractor shall also forward to the Engineer, at the end of each month, an itemized report of the delivery status of major and critical items of purchased equipment and material, including shop drawings and the status of shop and field fabricated work. These progress reports shall indicate the date of the purchase order, the correct percentage of completion, estimated delivery, and cause of delay, if any.

If the completion of any part of the work or the delivery of materials is behind the approved schedule, the Contractor shall submit in writing a plan acceptable to the Owner and Engineer for bringing the work up to schedule.

The Owner shall have the right to withhold progress payments for the work if the Contractor fails to update and submit the progress schedule and reports as specified.

58. PROSECUTION OF THE WORK

It is expressly understood and agreed that the time of beginning, rate of progress, and time of completion of the work are the essence of this Contract. The work shall be prosecuted at such time, and in or on such part or parts of the project as may be required, to complete the project as contemplated in the Contract Documents and the approved construction schedule.

If the Contractor desires to carry on work at night or outside the regular hours, he shall give timely notice to the Engineer to allow satisfactory arrangements to be made for inspecting the work in progress.

59. ASSIGNMENT

SEE CONTRACT

60. OWNER'S RIGHT TO DO WORK

If the Contractor should, in the opinion of the Engineer, neglect to prosecute the work properly or should neglect or refuse at his own cost to take up and replace work as shall have been rejected by the Engineer, then the Owner shall notify the Surety of the condition, and after 10 days' written notice to the Contractor and the Surety, or without notice if an emergency or danger to the work or public exists, and without prejudice to any other right which the Owner may have under the contract, take over that portion of the work which has been improperly executed and make good the deficiencies and deduct the cost thereof from the payments then or thereafter due the Contractor.

61. OWNER'S RIGHT TO TRANSFER EMPLOYMENT

If the Contractor should abandon the work or should be adjudged bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials, or if he should fail to make prompt

payment to subcontractors for material or labor, or persistently disregard laws, ordinances, or the instructions of the Engineer, or otherwise be guilty of a substantial violation of any provision of the Contract or any laws or ordinance, then the Owner may, without prejudice to any other right or remedy, and after giving the Contractor and Surety 7 days' written notice, transfer the employment for said work from the Contractor to the Surety. Upon receipt of such notice, such Surety shall enter upon the premises and take possession of all materials, tools, and appliances thereon for the purpose of completing the work included under this Contract and employ, by Contract or otherwise, any qualified person or persons to finish the work and provide the materials therefor, in accordance with the Contract Documents, without termination of the continuing full force and effect of this Contract. In case of such transfer of employment to such Surety, the Surety shall be paid in its own name on estimates according to the terms hereof without any right of the Contractor to make any claim for the same or any part thereof.

In lieu of the foregoing, if the Owner so elects, he may terminate the employment of the Contractor and take possession of the premises and of all materials, tools, and appliances thereon and finish the work by whatever method he may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the work is finished. If the expense of completing the Contract, including compensation for additional managerial and administrative services, shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner.

62. DELAYS AND EXTENSION OF TIME

If the Contractor is delayed in the progress of the work by any act or neglect of the Owner or the Engineer, or by any separate Contractor employed by the Owner, or by strikes, lockouts, fire, unusual weather conditions, or unavoidable casualties, the Contractor shall, within 48 hours of the start of the occurrence, give notice to the Owner of the cause of the potential delay and estimate the possible time extension involved. Within 7 days after the cause of delay has been remedied, the Contractor shall give notice to the Owner of any actual time extension requested as a result of the aforementioned occurrence.

No extension of time will be granted to the Contractor for delays occurring to parts of the work that have no measurable impact on the completion of the total work under this Contract; nor will extension of time be granted for delays to parts of work that are not located on the critical path if the Critical Path Method (CPM) is used for scheduling the work.

No extension of time will be considered for weather conditions normal to the area in which the work is being performed. Unusual weather conditions, if determined by the Engineer to be of a severity that would stop all progress of the work, may be considered as cause for an extension of Contract completion time.

Delays in delivery of equipment or material purchased by the Contractor or his subcontractors (including Owner-selected equipment) shall not be considered as a just cause for delay. The Contractor shall be fully responsible for the timely ordering, scheduling, expediting, delivery, and installation of all equipment and materials.

Within a reasonable period after the Contractor submits to the Owner a written request for an extension of time, the Engineer will present his written opinion to the Owner as to whether an extension of time is justified, and, if so, his recommendation as to the number of days for time extension. The Owner will make the final decision on all requests for extension of time.

In no event shall the Contractor be entitled under this Contract to collect or recover any damages, loss, or expense incurred by any delay other than as caused by the Owner, as stipulated in Article NOTICE OF CLAIM FOR DELAY.

63. LIQUIDATED DAMAGES

Should the Contractor fail to complete the work, or any part thereof, in the time agreed upon in the Contract or within such extra time as may have been allowed for delays by extensions granted as provided in the Contract, the Contractor shall reimburse the Owner for the additional expense and damage for each calendar

day, Sundays and legal holidays excluded, that the Contract remains uncompleted after the Contract completion date. It is agreed that the amount of such additional expense and damage incurred by reason of failure to complete the work is the per-diem rate, as stipulated in the Proposal. The said amounts are hereby agreed upon as liquidated damages for the loss to the Owner on account of expense due to the employment of Engineers, inspectors, and other employees after the expiration of the time of completion, and on account of the value of the operation of the works dependent thereon. It is expressly understood and agreed that this amount is not to be considered in the nature of a penalty, but as liquidated damages which have accrued against the Contractor. The Owner shall have the right to deduct such damages from any amount due, or that may become due the Contractor, or the amount of such damages shall be due and collectible from the Contractor or his Surety.

In accordance with the provisions of Section 4215 of the California Government Code, the Contractor shall not be assessed liquidated damages for delay in completion of the project, when such delay was caused by the failure of the public agency or owner of the utility to provide for the removal or relocation of such utility facilities.

64. OTHER CONTRACTS

The Owner reserves the right to let other Contracts in connection with the work. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his work with theirs.

If any part of the work under this Contract depends on the prior acceptable completion of work by others under separate Contract(s), the Contractor shall inspect and promptly report to the Engineer any defects in such work that would adversely affect the satisfactory completion of the work under this Contract. The Contractor's failure to so inspect and report shall constitute acceptance of the work by others as being suitable for the proper reception and completion of the work under this Contract, excluding, however, those defects in the work by others that occur after the satisfactory completion of the work specified hereunder.

65. USE OF PREMISES

The Contractor shall confine his equipment, the storage of materials, and the operation of his workers to limits shown on the Drawings or indicated by law, ordinances, permits, or directions of the Engineer, and shall not unreasonably encumber the premises with his materials. The Contractor shall provide, at his own expense, the necessary rights-of-way and access to the work which may be required outside the limits of the Owner's property.

The Contractor shall not load or permit any part of the structure to be loaded with a weight that will endanger its safety.

66. SUBSTANTIAL COMPLETION DATE

The Engineer may, at his sole discretion, issue a written notice of substantial completion for the purpose of establishing the starting date for specific equipment guarantees, and to establish the date that the Owner will assume the responsibility for the cost of operating such equipment. Said notice shall not be considered as final acceptance of any portion of the work or relieve the Contractor from completing the remaining work within the specified time and in full compliance with the Contract Documents. "Substantial completion" of an operating facility shall be that degree of completion that will provide a minimum of 7 continuous work days of successful operation in which all performance and acceptance testing has been successfully demonstrated to the Engineer. All equipment contained in the work, plus all other components necessary to enable the Owner to operate the facility in the manner that was intended, shall be complete on the substantial completion date. See "SUBSTANTIAL COMPLETION" under Article DEFINITIONS, of these General Conditions.

67. PERFORMANCE TESTING

Operating equipment and systems shall be performance tested in the presence of the Engineer to demonstrate compliance with the specified requirements. Performance testing shall be conducted under the specified design operating conditions as recommended or approved by the Engineer. Schedule such testing with the Engineer at least 1 week in advance of the planned date for testing.

68. OWNER'S USE OF PORTIONS OF THE WORK

The Owner shall have the right to take possession of and use any completed or partially completed portions of the work. Such use shall not be considered as final acceptance of any portion of the work, nor shall such use be considered as cause for an extension of the Contract completion time, unless authorized by a Change Order issued by the Owner.

69. CUTTING AND PATCHING

The Contractor shall do all cutting, fitting, or patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by work of other Contractors shown upon or reasonably implied by the Drawings. Any defective work or material, performed or furnished by the Contractor, that may be discovered by the Engineer before the final acceptance of the work or before final payment has been made, shall be removed and replaced or patched, in a manner as approved by the Engineer at the expense of the Contractor.

70. CLEANING UP

The Contractor shall, at all times, at his own expense, keep property on which work is in progress and the adjacent property free from accumulations of waste material or rubbish caused by employees or by the work. Upon completion of the construction, the Contractor shall, at his own expense, remove all temporary structures, rubbish, and waste materials resulting from his operations.

C6 PAYMENT

71. PAYMENT FOR CHANGE ORDERS

Payment or credit for any alterations covered by a Change Order shall be determined by one or a combination of the methods set forth in A, B, or C below:

- A. **UNIT PRICES.** If applicable, those unit prices stipulated in the Proposal, or unit prices negotiated and mutually acceptable to the Contractor and Owner.
- B. **LUMP SUM.** A total sum for the work negotiated and mutually acceptable to the Contractor and Owner.

In "A" and "B" above, Contractor's quotations for Change Orders shall be in writing and firm for a period of 30 days. Any compensation paid in conjunction with the terms of a Change Order shall comprise total compensation due the Contractor for the work or alteration defined in the Change Order. By signing the Change Order, the Contractor acknowledges that the stipulated compensation includes payment for the work or alteration plus all payment for the interruption of schedules, extended overhead, delay or any other impact claim or ripple effect, and by such signing specifically waives any reservation or claim for additional compensation in respect to the subject of the Change Order.

The Owner's request for quotations on alterations to the work shall not be considered authorization to proceed with the work prior to the issuance of a formal Change Order, nor shall such request justify any delay in existing work. Lump sum quotations for alterations to the work shall include substantiating documentation with an itemized breakdown of Contractor and subcontractor costs, including labor, material, rentals, approved services, overhead, and profit calculated as specified under "C" below.

- C. **FORCE ACCOUNT WORK.** If the method of payment cannot be agreed upon prior to the beginning of the work, and the Owner directs by written Change Order that the work be done on a force account basis, then the Contractor shall furnish labor, equipment, and materials necessary to complete the work in a satisfactory manner and within a reasonable period of time. For the work performed, payment will be made for the documented actual cost of the following:
1. Labor, including foremen, who are directly assigned to the force account work (actual payroll direct wage cost as established by negotiated labor agreements, except overtime will not be paid for less than 8 hours of work per day.) No other fixed labor burdens will be considered, unless approved in writing by the owner.
 2. Material delivered and used on the designated work, including sales tax, if paid for by the Contractor or his subcontractor.
 3. Rental, or equivalent rental cost of equipment, including necessary transportation for items having a value in excess of \$100.

To costs under "C". FORCE ACCOUNT WORK", there shall be added the following fixed fees for the Contractor or subcontractor actually performing the work:

- A. A fixed fee of 30 percent of the cost of Item 1 above,
- B. A fixed fee of 15 percent added to the cost of Items 2, and
- C. A fixed fee of 15 percent added to the cost of Items 3 above.

An additional fixed fee of 5 percent shall be allowed the Contractor for the administrative handling of portions of the work that are performed by an approved subcontractor. No additional fixed fee will be allowed for the administrative handling of work performed by a subcontractor of a subcontractor, unless by written permission from the Owner.

The above added fixed fees shall be considered to be full compensation, covering the cost of general supervision, overhead, profit, and any other general expense, and no additional fees or surcharges shall be allowed.

The Owner reserves the right to furnish such materials and equipment as he deems expedient, and the Contractor shall have no claim for profit or added fees on the cost of such materials and equipment.

For equipment under Item 3 above, rental or equivalent rental cost will be allowed for only those days or hours during which the equipment is in actual use. Rental and transportation allowances shall not exceed the current rental rates prevailing in the locality. The rentals allowed for equipment will, in all cases, be understood to cover all fuel, supplies, repairs, and renewals, and no further allowances will be made for those items, unless specific agreement to that effect is made.

The Contractor shall maintain his records in such a manner as to provide a clear distinction between the direct costs of work paid for on a force account basis and the costs of other operations. The Contractor shall furnish the Engineer daily extra work report sheets in duplicate of each day's force account work no later than the working day following the performance of said work. The daily report sheets shall itemize the materials used, and shall cover the direct cost of labor and the charges for equipment rental, whether furnished by the Contractor, subcontractor, or other forces. The daily report sheets shall provide names or identifications and classifications of workers, the hourly rate of pay and hours worked, and also the size, type, and identification number of equipment and hours operated.

Material charges shall be substantiated by valid copies of vendors' invoices. Such invoices shall be submitted with the daily extra work report sheets, or if not available, they shall be submitted with subsequent daily report sheets. Said daily extra work report sheets shall be signed by the Contractor or his authorized agent.

To receive partial payments and final payment for force account work, the Contractor shall submit in a manner approved by the Engineer, detailed and complete documented verification of the contractor's and any of his subcontractors' actual current costs involved in the force account work pursuant to the issuance of an approved Change Order. Such costs shall be submitted within 30 days after said work has been performed.

No payment will be made for work billed and submitted to the Engineer after the 30-day period has expired. No extra or additional work shall be performed by the Contractor, except in an emergency endangering life or property, unless in pursuance of a written Change Order, as provided in Article ALTERATIONS.

72. PARTIAL PAYMENTS

A. GENERAL

Nothing contained in this Article shall be construed to affect the right, hereby reserved, to reject the whole or any part of the aforesaid work, should such work be later found not to comply with the provisions of the Contract Documents. All estimated quantities of work for which partial payments have been made are subject to review and correction on the final estimate. Payment by the Owner and acceptance by the Contractor of partial payments based on periodic estimates of quantities of work performed shall not, in any way, constitute acceptance of the estimated quantities used as the basis for computing the amounts of the partial payments.

B. LUMP SUM PRICE BREAKDOWN

For work to be done for a lump sum price, the Contractor shall submit a price breakdown to the Engineer immediately after award of the Contract. The price breakdown, as agreed upon by the Contractor and Engineer, shall be used for preparing future estimates for partial payments to the Contractor, and shall list the major items of the work with a price fairly apportioned to each item. Overhead, other general costs, and profit shall be prorated to each item so that the total of the prices for all items equals the lump sum price. The price breakdown will be subject to the approval of the Engineer and, upon request the Contractor, shall substantiate the price for any or all items.

C. ESTIMATE

Before the first working day of each calendar month, the Contractor shall submit to the Engineer a detailed estimate of the amount earned for the separate portions of the work, and request payment. As used in this Article, the words "amount earned" means the value, on the date of the estimate for partial payment, of the work completed in accordance with the Contract Documents, and the value of approved materials delivered to the project site suitably stored and protected prior to incorporation into the work. If the Contractor's estimate of amount earned conforms with the Engineer's evaluation, the Engineer will calculate the amount due the Contractor and make recommendation to the Owner for payment.

D. DEDUCTION FROM ESTIMATE

Ten percent of the total amount earned for work satisfactorily completed plus 10 percent of the value of approved materials on the jobsite but not yet incorporated into the work will be deducted and retained by the Owner, or the Contractor may elect to substitute securities of equivalent value in accordance with Section 22300 of the Public Contract Code.

Pursuant to Section 22300 of the Public Contract Code, the Contractor may substitute securities for any money held by the Owner to insure performance of the Contract. At the request and expense of the Contractor, securities equivalent to the amount withheld shall be deposited with the Owner or with a State or federally-chartered bank as an escrow agent, who shall return such securities to the Contractor upon satisfactory completion of the Contract. Deposit of securities with an escrow agent shall be subject to written agreement in accordance with the provisions of Section 22300. The Owner shall not certify that the Contract has been completed until at least 45 days after filing by the Owner of a Notice

of Completion. Securities eligible for investment under this Section shall be limited to those listed in Section 16430 of the California Government Code, bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed upon by the Contractor and the public agency.

E. QUALIFICATION FOR PARTIAL PAYMENT FOR MATERIALS DELIVERED

Unless modified in the Supplementary Conditions, qualification for partial payment for materials delivered but not yet incorporated into the work shall be as described below.

Materials, as used herein, shall be considered to be those items which are fabricated and manufactured material and equipment. Only those materials for which the Contractor can transfer clear title to the Owner will be qualified for partial payment.

To receive partial payment for materials delivered to the site, but not incorporated in the work, it shall be necessary for the Contractor to submit to the Engineer, at least 7 days prior to the end of said month, a list of such materials. At his sole discretion, the Engineer will approve items for which partial payment is to be made. The Contractor's actual net cost for the materials must be supported by invoices of suppliers. Proper storage and protection shall be provided by the Contractor, and as approved by the Engineer. Final payment shall be made only for materials actually incorporated in the work and, upon acceptance of the work, all materials remaining for which advance payments had been made shall revert to the Contractor, unless otherwise agreed, and partial payments made for these items shall be deducted from the final payment for the work.

F. PAYMENT

After deducting the retainages and the amount of all previous partial payments made to the Contractor, the amount earned as of the current month will be made payable to the Contractor 10 days after the last day of said month, except where the Owner is a municipality or other agency whose laws require the approval of each payment by a council or similar body, in which case, the payment shall become due and payable 10 days after the first meeting in the following month scheduled for approval of such payments.

73. CLAIMS (ALSO SEE COINTRACT)

In any case where the Contractor deems additional compensation is due him for work or materials not clearly covered in the Contract or not ordered by the Engineer according to provisions of Article ALTERATIONS, the Contractor shall notify the Engineer, in writing, of his intention to make claim for such compensation before he begins the work on which he bases the claim, in order that such matters may be settled, if possible, or other appropriate action promptly taken. If such notification is not given or the Engineer is not afforded proper facilities by the Contractor for keeping strict account of actual cost, then the Contractor hereby agrees to waive the claim for such additional compensation. Such notice by the Contractor, and the fact that the Engineer has kept account of the cost as aforesaid, shall not in any way be construed as proving the validity of the claim. Claims for additional compensation shall be made in itemized detail and submitted, in writing, to the Owner and Engineer within 10 days following completion of that portion of the work for which the Contractor bases his claim. In case the claim is found to be just, it shall be allowed and paid for as provided in Article PAYMENT FOR CHANGE ORDERS, or it shall be allowed and paid under a supplemental agreement to be entered into between the parties to the Contract.

74. NOTICE OF CLAIM FOR DELAY

If the Contractor intends to file a claim for additional compensation for a delay caused by the Owner at a particular time, he shall file a notice of claim with the Owner within 7 days of the beginning of the occurrence. The notice of claim shall be in duplicate, in writing, and shall state the circumstances and the reasons for the claim, but need not state the amount. No claim for additional compensation will be

considered unless the provisions of Article DELAYS AND EXTENSION OF TIME, are complied with, and a notice of claim has been filed with the Owner in writing, as stated above.

75. RELEASE OF LIENS OR CLAIMS

Before the Owner pays the Contractor his final payment for the work, the Contractor shall sign and deliver to the Owner a release of liens or claims sworn to under oath and duly notarized. The release shall state that the Contractor has satisfied all claims and indebtedness of every nature in any way connected with the work, including (but not limiting the generality of the foregoing) all payrolls, amounts due to subcontractors, accounts for labor performed and materials furnished, incidental services, liens, and judgments.

If any lien or claim remains unsatisfied after all payments to the Contractor are made, the Contractor shall refund to the Owner all moneys that the latter may be compelled to pay in discharging such a lien or claim, including all costs and a reasonable attorney's fee.

76. FINAL PAYMENT

Upon completion of all of the work under this Contract, the Contractor shall notify the Engineer, in writing, that he has completed his part of the Contract and shall request final payment. If the work has been completed to the extent of the Contract Documents, the Engineer will recommend acceptance of the completed work and submit a final estimate of the amount due the Contractor under this Contract. Within 10 days following Owner's acceptance of the work, the Owner will file a Notice of Completion with the County Recorder's office. Thirty-five days after the filing of the Notice of Completion, and subject to the Contractor's evidence of compliance with Article RELEASE OF LIENS OR CLAIMS, the Owner will pay to the Contractor all moneys due him under the provisions of these Contract Documents.

77. NO WAIVER OF RIGHTS (ALSO SEE CONTRACT)

Neither the inspection by the Owner, through the Engineer or any of his employees, nor any order by the Owner for payment of money, nor any payment for, or acceptance of, the whole or any part of the work by the Owner or Engineer, nor any extension of time, nor any possession taken by the Owner or its employees, shall operate as a waiver of any provision of this Contract, or any power herein reserved to the Owner, or any right to damages herein provided, nor shall any waiver of any breach in this Contract be held to be a waiver of any other or subsequent breach.

78. ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE

The acceptance by the Contractor of the final payment shall release the Owner and the Engineer, as agent of the Owner, from all claims and all liability to the Contractor for all things done or furnished in connection with the work, and every act of the Owner and other relating to or arising out of the work. No payment, however, final or otherwise, shall operate to release the Contractor or his Sureties from obligations under this Contract and the Performance and Payment Bond, and other bonds and warranties, as herein provided.

END OF SECTION

SECTION D TECHNICAL SPECIFICATIONS & MODIFICATIONS

- D1 - GENERAL TECHNICAL PROVISIONS**
- D2 - SPECIAL PROVISIONS (TECHNICAL PROVISIONS)**

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D1 GENERAL TECHNICAL PROVISIONS

GENERAL RESPONSIBILITIES OF THE CONTRACTOR

D1.1 - SCOPE

The work to be performed under this Contract consists of furnishing, by the Contractor, in accordance with the Plans, Specifications and these Technical Provisions and subject to the terms and conditions of the Contract, all materials, equipment, tools, labor, and incidentals necessary for the construction of the proposed project, complete in place.

The scope of work to be accomplished by the Contractor under these specifications shall include, but not limited to, the following general categories of work: protecting and adjusting existing utilities; clearing and grubbing including the removal or abandonment of existing facilities; street construction including new pavement section, curb and gutter, sidewalks, curb ramps, sidewalks, driveway approaches and bus pullout; constructing storm drain improvements; installing landscaping including decorative pavers, benches, kiosk, bollards, bike racks and trash receptacles, irrigation system, street lighting, signing and striping; and all appurtenant work, complete in place, in accordance with the Plans, Specifications and these Technical Provisions. General responsibilities and miscellaneous administrative requirements shall be compiled with as specified in the Plans, Specifications and these Technical Provisions.

D1.2 – EMERGENCY INFORMATION

The Contractor shall provide the following information in writing and submit it with the signed Contract, Contract Bonds, and duplicate insurance policy. Failure to comply may result in delays in the processing of the Plans.

1. Name of authorized representative at the jobsite.
2. Address and telephone number where the above person can be reached.
3. Address of the nearest office of the Contractor, if any, and the name and telephone number of a person at that office who is familiar with the project.
4. Address and telephone number of the Contractor's main office and the name and telephone of the person at that office familiar with the project.

D1.3 – UTILITIES (See Also Special Provisions)

D1.3.1 - SCOPE

Work under this section shall be performed in accordance with the Standard Specifications and shall include the following items:

1. For all utilities such that no damage occurs to any existing facility and all services are maintained at all times in accordance with Standard Specifications Section 8-1.10. The Contractor shall exercise extreme caution during its entire operation so as not to cause any damage to existing facilities. Any damage to existing facilities resulting from the Contractor's work shall be repaired by the Contractor at its own expense to the satisfaction of the City and respective utility holder.
2. For all utilities scheduled for relocation/removal/abandonment, either by the Contractor or by others as designated on the Plans.
3. The Contractor is responsible to accurately locate, by potholing or other suitable methods, all existing utilities and substructures as shown on the Plans and marked out by Underground Service Alert (USA), to prevent damage to such facilities and to identify any conflicts with the proposed work. The cost of utility location shall be included in the price per linear foot for pipelines and no additional compensation will be made by the Agency. With the exception of service connections, potholing for existing utilities not shown on the Plans, but marked out by USA shall be as directed by the Engineer and paid for according to Section 3-3, "Extra Work" of the Standard Specifications and Paragraph 71, "Payment for change orders" of the specifications. The Contractor shall fill all potholes on the same day of excavation, and fully restore all potholes (and any damaged surrounding areas) to their original condition, if no trenching is performed within 10 working days.

4. There will be no other compensation for potholing at any specific location required by the Plans. Neither will showing some specific locations on the Plans relieve the Contractor of the responsibility to pothole as previously mentioned in this Section.
5. The Contractor shall notify the Engineer in writing of any conflicts between existing utilities and the proposed work a minimum of five working days, and 300 feet in advance of the work to provide adequate time and space for any changes to the work needed to avoid unforeseen conflicts. The Contractor shall perform utility location far enough in advance of the work to provide the written notification specified in this section. The written notification shall include date of utility location; method of utility location; type, size, and material of utility; horizontal location (to the nearest station); depth from existing pavement or ground surface to top and bottom of utility; suspected ownership of utility; and the date on which any conflict with the utility will impact the Critical Path.
6. For existing utilities shown on the Plans or marked out by USA, the Contractor shall not be entitled to an extension of contract time or compensation for delay if direction is provided by the Engineer within five working days from receipt of the Contractor's written notification of the utility conflict. If the Engineer does not provide direction to the Contractor within five working days, an extension of contract time may be granted in accordance with Section 6-6.2 of the Standard Specifications beginning on the sixth working day after receipt of the Contractor's written notification.
7. There shall be five-hour maximum shutdown time of existing water services or mains while making connection. 24 hour notice of shutdown shall be given to all water customers by the Contractor.

D1.3.2 – UTILITY CONTACTS

The known public utilities contacts are:

City of Greenfield (Water & Sewer)	(831) 674-5591
AT&T, Bernie Meister	(805) 434-0939
PG&E, Jose Saldana	(831) 784-3574
Charter Communications, Tim Carr	(408) 640-8030

The existing subsurface utilities shown have been indicated, based on the best available record information. However, to avoid or resolve any interference problems between these existing utilities and the proposed work, the Contractor shall field verify the vertical and horizontal locations of all utilities, such as waterlines and water services, electronic conduits, telephone and television cable, storm drain facilities, and all other facilities and obstructions prior to beginning any excavations. If conflicts exist, revised grades and/or alignments may be established, if required. **Such field verification shall require exposing these utilities prior to the start of construction.**

The Contractor shall telephone USA at 1-800-642-2444 a minimum of three working days prior to the start of construction. No excavation shall commence unless the Contractor has obtained the USA Inquiry Identification Number. For best response, provide as much notice as possible, up to 10 working days.

D1.4 – MOBILIZATION (See Also Special Provisions)

Mobilization shall consist of preparatory work and operations including, but not limited to, insurance, bonds, required permits and fees, shop drawings, submittals, the movement of personnel, equipment, supplies, and incidentals to the project site (mobilization), as-built plans, coordination with other contractors, meetings, moving off the project, and clean up. Mobilization shall additionally include the establishment of any temporary facilities and the submittal of a detailed construction schedule and the storm water pollution prevention plan (SWPPP).

Any other costs of work in advance of construction operations and not directly attributable to any specific bid item shall be considered mobilization.

The Contractor, at its own expense, shall obtain permission from property owners fronting this project to store equipment and supplies in front of the private properties whether in or out of the right-of-way. The Contractor shall demonstrate permission to the City in writing either by letter from the owners or by signed consent from them. Construction and stored equipment and supplies shall not obstruct access to the residences or restrict sight distance. The Contractor shall also demonstrate, in writing to the City, permission to construct or encroach on private property.

D1.5 – PROPERTY/ BUSINESS OWNER NOTIFICATION

N/A

D1.6 – SUBMITTALS

The Contractor shall provide the following submittals prior to the preconstruction meeting:

1. Project Schedule
2. Traffic Control Plan (If Applicable)
3. Emergency Contact List
4. List of Subcontractors

D1.7 – CONSTRUCTION SCHEDULE AND PROJECT PHASING

Two weeks prior to starting any construction work, the Contractor shall submit to the Engineer for review a project construction schedule in accordance with Section 6-1, "Construction Schedule and Commencement of Work. **See also "Scheduling and Time of Completion" in Special Provisions.**

The Contractor shall phase the work to minimize construction impacts on the neighborhood businesses and residents. The Contractor shall maintain and provide written notices to each business and residence pending street and alley closures as required by these Technical Provisions. **See also "Scheduling and Time of Completion" in Special Provisions.** A separate permit from the City is required for any street closures.

Attention is directed to Traffic Control Section of these Technical Provisions for additional requirements.

D1.8 – WATER POLLUTION CONTROL AND NPDES REQUIREMENTS

The Contractor shall comply with the applicable NPDES requirements and Construction BMPs to prevent sediment migration offsite including SWPPP compliance-as described in these Specifications.

All areas outside of the project limits disturbed by the Contractor for the prosecution of the work shall also be subject to the requirements of these Technical Provisions. The Contractor shall be fully responsible for all costs and liabilities associated with water pollution control measures in

D1.9 – PERMITS

In accordance with Section 7-5 "Permits" , Contractor shall obtain, and keep in force at its cost, all other permits required for the project. Should the Contractor fail to conform to said rules and regulations, the Agency reserves the right to perform the work necessary to conform to the rules and regulations and the cost of such work will be deducted from any monies due to the Contractor.

D1.10 – DUST CONTROL

The contractor shall furnish all labor, equipment, and means required and shall carry out effective measures wherever and as often as necessary to prevent its operation from producing dust in amounts damaging property, or causing a nuisance to persons living or occupying buildings in the vicinity, or nuisance to normal operation of business in the vicinity. The contractor shall be responsible for any damage resulting from any dust originating from its operations. The dust abatement measures shall be continued until the Contractor is relieved of further responsibility by the Engineer.

D1.11 – VIDEOTAPING

N/A

D1.12 – CONSTRUCTION SURVEY

If applicable, the Contractor shall provide Construction Staking. Location/Line and grade shall be staked for all improvements, and the survey "cut sheets" shall be provided to the City within 24 hours of field setting, and 2 working days prior to the commencement of any related construction.

The Contractor shall be responsible for complying with the applicable portions of Section 2-9 of the Standard Specifications regarding notification and the preservation of monument and construction survey stakes. Replacement of damaged or disturbed stakes, if required, shall be at the expense of the Contractor.

D1.13 – HOURS OF OPERATION

Unless otherwise approved by the Engineer, the Contractor shall not work outside the following hours of operation on this project:

For streets owned by the City of Greenfield:

Weekdays (M T W Th F): 7:00 AM - 7:00 PM, or sundown - whichever is earlier.

Weekends (Sat. & Sun.): No Work.

For Holidays, refer to Section 6-7.2.1 and City of Greenfield website or City Receptionist.

D1.14 – SUBSURFACE DATA & WIND & SEISMIC LOADS

N/A

D1.15 – COOPERATION WITH OTHERS

The Contractor's attention is directed to Sections 5-6, "Cooperation," and 7-7, "Cooperation and Collateral Work," of the Standard Specifications.

The following construction projects are scheduled during the time of this project.

1. ***Playground Equipment Repair Project.*** A specialized playground equipment repair contractor has been hired directly by the City to repair and install playground equipment. This contract shall work closely with and complimentary to, their schedule, to assure playground pads and filler material is placed immediately upon completion of their work to insure a safe play surface is available immediately upon placement of the new and repaired play equipment.

D1.16 - Services to be Provided by the CITY

1. CITY review and approval for submittals
2. Procurement of CPSI and Landscape Architect for inspection as required

D1.17 SITE CLEAN UP

6.1 Before the work shall be considered complete, any and all rubbish and unused materials due to or connected with the project shall be removed from the premises and disposed of in a manner satisfactory to the City and in accordance with any and all local, state and federal regulations. SEE ALSO SPECIAL PROVISIONS FOR PROJECT SITE MAINTENANCE REQUIREMENTS.

6.2 Private and/or public property disturbed and/or damaged as a result of the performance of the work shall be restored to a condition equal to or better than the condition they were in prior to the commencement of work by the Selected Contractor. This shall be accomplished solely at the expense of the Selected Contractor.

6.3 Payment for the Selected Contractor's services may be withheld until such a time as any and all such clean-up has been completed.

D1.18 WRITTEN GUARANTEE

- 7.1 The Selected Contractor shall provide the City with a written guarantee that clearly states all work was performed in accordance with the City’s specifications and the standards stipulated herein, and shall guaranteed the work against defects due to premature material failure, faulty workmanship or improper application of materials which may appear for a period of no less than one (1) year following the City’s final acceptance of the completed work.
- 7.2 The written guarantee must cover any and all supplies, equipment, material and labor that are necessary to correct any and all defects which may occur during the term of the guarantee.

D1.19 – PAYMENT FOR GENERAL DUTIES AND RESPONSIBILITIES OF CONTRACTOR

The general duties and responsibilities of the Contractor as described in this section are considered applicable to all the work, and no additional compensation will be made for the work required in this section.

-END OF SECTION-

D2 SPECIAL PROVISIONS

For
GREENFIELD COMMUNITY PARK
Bid # eng-15-16-B1014
City Project No. B1014
City of Greenfield, California

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SPECIAL PROVISIONS – TECHNICAL SPECIFICATIONS

DESCRIPTION OF THE WORK

The scope of work consists of all park improvements directed and illustrated by the plans and these specifications. The work includes structure and utility demolition, rough and fine grading, utility installation, subsurface drainage, decomposed granite pathways with steel or concrete edges, miscellaneous concrete and masonry structures, safety surfacing, construction of custom and prefabricated play facilities, irrigation, planting, and the maintenance of the landscape during an establishment period. The work also consists of minor right of way improvements, installation of signs, and participation by youths or families in the landscape planting and the decoration of entrance features with mosaic tiles to be overseen by the City of Greenfield. The community involvement work will not interfere with the construction schedule of the contractor. Park construction will be deemed fully complete at the end of the plant establishment period as certified by the City Representative. There shall be no partial or phased acceptance of construction.

STANDARD SPECIFICATIONS

Except as modified by these General and Special Provisions, the STANDARD SPECIFICATIONS FOR PUBLIC WORKS, 2015 edition, and its supplements prepared and promulgated by the Southern California Chapters of the American Public Works Association, constitute the Standard Specifications for this project. However, City of Greenfield standards or construction plates shall take precedence over the STANDARD SPECIFICATIONS. CSI specifications are used for the signage, the bathroom structure, electrical construction, faux rock construction and in other sections. Where conflicts occur, Greenbook shall prevail.

MEASUREMENT AND PAYMENT SCHEDULE DESCRIPTION

The measurement and payment schedule is largely organized according **LUMP SUM** payments and units constructed or installed in place and approved by the City Representative. Each bid item identifies measurement and payment. For the construction of facilities that are constructed on-site, such as the restrooms, the water play area and a climbing wall **LUMP SUM** payments can be invoiced and paid monthly according to percentage of completion as approved by the City Representative. In general, prefabricated structures, such as playground equipment and trash receptacles are to be invoiced after they are fully installed. Site wide construction features that are bid according to unit prices, such as mulch and decomposed granite are to be invoiced according to units installed and approved by the City Representative.

The full construction price bid shall consist of all tasks, structures and work called for in the plans and these specifications to complete a fully functional park. Tasks

and materials that do not appear as line item improvements are included as part of other applicable bid items and no additional payment will be made therefore.

NON BID PROVISIONS AND TECHNICAL SPECIFICATIONS AS PART OF OTHER BID ITEMS

Payment for these items will be included in the prices bid for other items of work and not additional payment will be made.

SCHEDULING AND TIME OF COMPLETION

Upon notification of selection, but prior to execution of the construction agreement, the contractor shall submit a Schedule of Completion Plan to be discussed and approved by the City. The plan shall indicate a phased construction program that provides minimum circulation impact to pedestrian and vehicular circulation. The Contractor shall diligently pursue the Work to completion within 6 months from the time specified in the Notice to Proceed. This project must be completed, including landscape maintenance, prior to 8 months after the date of contract execution.

NOTICE TO IMPACTED RESIDENTS, BUSINESSES AND PUBLIC AGENCIES

The Contractor shall post a sign on the corner of 3rd and Apple, in English and Spanish that a new park is under construction. The City will furnish the sign. Sign maintenance is the responsibility of the contractor. Damage or graffiti shall be removed within two days or the City will have the sign repaired at the contractor's expense.

The contractor shall not close streets to vehicular traffic.

The Contractor shall notify responsible law enforcement, school district and fire protection agencies 72 hours prior to the commencement of work.

If the work is delayed or rescheduled for any reason after placement of the "No Parking Tow Away" signs, the Contractor shall re-date the signs immediately and notify affected agencies and residents in a prompt fashion.

COMMUNITY PARTICIPATION

The community will participate in the planting of one hundred fifty 5 gallon shrubs and building a veneer onto the CMU walls and seats at the project's corner entry. Community participation will not occur during project construction hours or days. Planting and wall veneer applications will occur on weekends. City staff and volunteers will oversee the work of the families and children, and the areas to be improved will be free of equipment and free of debris. Community workers will leave the site in the same condition. It is estimated that the work will take three (3) Saturday and Sunday week-ends.

TRAFFIC CONTROL, PUBLIC CONVENIENCE AND SAFETY

Provide for the protection of the public, all necessary fencing, barricades, traffic cones, warning signs, flagmen, lights, and other safety devices in accordance with Section 7-10 of the Standard Specifications for Public Works Construction (SSPWC), the current requirements set forth in the "Traffic Manual" published by the Department of Transportation, State of California, and these Special Provisions. Maintain two-way traffic, a minimum of one 12-foot lane in each direction at all times. Any deviation from these Plans must have prior approval by the City Representative. Submit to the City Representative a traffic control plan for approval one week prior to the request to alter traffic flow. Maintain all private and public driveway access openings at all times. At the end of each working day, streets shall be clear of construction debris and no storage of equipment will be allowed.

Install, maintain and remove all temporary, delineators, barricades, lights, warning signs and other facilities necessary to control traffic along streets and on site as specified in the CALTRANS Part 6, "Temporary Traffic Control" of the California MUTCD. All traffic control devices shall be free of graffiti. Immediately clean and or replace any device to the satisfaction of the Engineer. No more than one work day is allowed to remove graffiti.

WATER SUPPLY

The City will furnish an adequate supply of water for the purpose of backfill compacting, constructing, and one time testing of all the Work under these plans and Specifications. The City will also pay for irrigation water used during the 90 day maintenance period. If the maintenance period is extended beyond 90 days at the fault of the contractor, further payment shall be made by the contractor at regular water rates for park irrigation water use. Obtain and pay the deposit for the water meter from City Hall for the project. The location at which the water supply will be made available will be a point, or points, to be designated by the City. Provide a backflow prevention device for each meter.

PROJECT SITE MAINTENANCE

Keep the site clean, control dust from construction operations, provide sanitation for workers, and control air pollution from construction operations in accordance with Section 7-8 of the Standard Specifications for Public Works Construction (SSPWC). Upon completion of the Work, and before the final inspection, satisfactorily dispose of, or cause to be disposed of, all rubbish, unused materials, concrete forms, and other equipment used during the construction of the improvements. In the event that the Contractor fails to perform this final clean up, the City may remove and/or dispose of the articles or materials at the Contractor's expense.

Keep paved areas clean by furnishing and operating a self-loading motor sweeper at least once every day. Abate dust by sprinkling water, but the use of water resulting in mud on public streets will not be permitted. Debris and dirt resulting from park construction on public streets shall be removed daily.

SOILS

Based on the consistency of the soils in this area, and recent soils investigations by Earth Systems on an adjacent development, and by Terra Engineering, Inc., no soils tests were conducted on this site. The grading plans and earthwork specifications denote procedures that are intended to minimize earthwork and the processing of rocks and cobble. Any additional subsurface information needed for the project shall be done by Bidders or the Contractor at their own expense.

SOLID WASTE MANAGEMENT

SCOPE

Prepare and execute solid waste management plan for project in accordance with requirements of Section 5.408, "Construction Waste Reduction, Disposal and Recycling" of the 2013 California Green Building Standards Code. Generate the least amount of waste possible through careful planning and operational controls. Recycle and/or salvage for reuse a minimum of 50 percent of the non-hazardous construction and demolition waste. Reuse or recycle 100 percent of trees, stumps, rocks, associated vegetation, and soils resulting from land clearing.

SUBMITTALS

1. Construction Waste Management Plan
2. Construction Waste Management Worksheet
3. Construction Waste Management Acknowledgement

QUALITY ASSURANCE

1. Provide monthly compliance documentation with pay request.
2. Submit completion compliance document upon completion of work.

REFERENCES

1. *California Green Building Standards Code, 2013 Edition*, California Building Standards Commission.
2. *Guide to the 2013 California Green Building Standards Cod (Nonresidential)*, California Building Standards Commission.

METHODS

Review applicable suggested forms and templates included in the references.

Carefully review project scope and prepare written construction waste management plan that includes the following:

1. Identifies the construction and demolition waste materials to be diverted from disposal by efficient usage, recycling, reuse on the project or salvage for future use or sale.
2. Determines if construction and demolition waste materials will be sorted on-site (source separated) or bulk mixed (single stream).
3. Identifies diversion facilities where construction and demolition waste material collected will be taken.
4. Specifies that the amount of construction and demolition waste materials diverted shall be calculated by weight or volume but not by both.
5. For bulk mixed (single stream) recycling, utilize a commercial waste management facility that can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with the requirements.
6. Provides for appropriate education of employees and subcontractors. Requires written acknowledgement of construction waste management plan by subcontractor's project manager and on-site foreman.

Routinely monitor and document compliance with solid waste management plan. Prepare monthly compliance documentation including copies of all hauling and disposal receipts for the previous month. Include monthly compliance documentation with each pay request.

Prepare compliance report at project completion that documents the recycle or reuse of 50 percent of all non-hazardous construction and demolition waste, and the recycle or reuse of 100 percent of trees, stumps, rocks, associated vegetation, and soils resulting from land clearing. Provide copies of all hauling and disposal receipts.

Full compensation for preparation and implementation of solid waste management plan shall be considered as incidental and included in the various items of work that require solid waste management and no additional compensation will be made therefor.

RESTORATION OF DAMAGED EXISTING IMPROVEMENTS

Existing improvements shall be reconstructed in accordance with the applicable provisions of these Specifications and, unless otherwise shown on the Plans or indicated in the Specifications, shall conform to the following requirements:

All curbs, gutters and sidewalks that are damaged during the course of construction, shall be removed and replaced to the next joint or scoring beyond the actually damaged or broken sections. Upon certification of construction by the City Representative, the contractor will no longer be responsible for repair of facilities not directly damaged by the contractor. In the event a joint or scoring line does not exist, or in the event that said joint is six (6) feet or more from the removed or damaged section, the damaged concrete shall be removed to engineer's marks and reconstructed to neat, plane faces.

A concrete saw shall be used for removal of existing concrete and asphalt improvements.

The drainage flow line along Apple shall be maintained during the course of the work, and repaired within 3 days if it is altered or damaged.

All new concrete shall match, as nearly as possible, the appearance of adjacent concrete improvement.

If any of the three existing mature trees are damaged or die during construction, they shall be replaced by a tree of like size and species at the expense of the contractor.

PRESERVATION & PROTECTION

All trees and landscape that are identified on the plan to be preserved and protected are included in this scope of work.

1. No herbicides or pesticides shall be used on this project.
2. Pruning shall be undertaken as directed by the City Representative and as called for on the plans.
3. The trenching or grading required within the dripline of any of the three existing trees shall be done by hand with 24 hour notification to the City Representative. No dirt shall be added or removed from any portion of the finish grade under the drip line without written authorization of.

Payment for PRESERVATION & PROTECTION will be included in the prices bid for other items of work and no additional payment will be made.

GEO FABRIC BARRIER

MATERIALS & METHODS

Geo fabric shall be placed as indicated on the plans and in these specifications. Geotextile fabric shall be synthetic, nonwoven fabric made from staple filaments of polypropylene fiber that are needle punched and heat set. Textile shall be light weight @ 5 oz/sy +/- 2 oz.

Payment for GEO FABRIC BARRIER will be included in the prices bid for other items of work and no additional payment will be made.

MOISTURE BARRIER

MATERIALS AND METHODS

High Density Polyethylene moisture barrier shall be made from state-of-the-art polyethylene resins that provide superior physical and performance properties that meet or exceed ASTM E-1745 Class A, B and C requirements. Sheet shall be high tensile strength, puncture resistant, low moisture vapor permeability as well as resistance to decay with 10 mil thicknesses.

It shall be installed per manufacturer's recommendations and without seams where possible.

Payment for **MOISTURE BARRIER** will be included in the prices bid for other items of work and no additional payment will be made.

AGGREGATE BASE SCOPE

This section consists of furnishing all labor, materials and equipment necessary and incidental to placing and compacting to 95% density crushed miscellaneous base for the construction of the asphalt concrete, concrete curb, and concrete curb and gutter, flatwork, safety surfacing, boulders and all other locations shown on the Contract Drawings and as directed by the City Representative.

SUBMITTALS

1. Compliance: Submit Sieve Analysis for Review and approval by the Engineer.
2. Submit manufacturers' and Supplier's Certification and test reports that materials delivered to the site are in compliance with the specifications.

QUALITY ASSURANCE

1. Establish and maintain required lines and elevations. Compact material in conformance with the project specifications and plans
2. Materials not meeting the requirements shall not be used in the work.

MATERIALS

Crushed Aggregate Base shall comply with the requirements as set forth by section 200-1 of the SSPWC. It shall meet CALTRANS specifications and be located no more than 25 miles from the park site.

METHODS - ROW, PUBLIC SIDEWALKS, RAMPS AND AC PAVING –

All ROW, public sidewalks, ramps and AC paving work shall conform to section 301 of the SSPWC. The work shall further consist of preparing sub grade prior to the placement of base material.

Pavement sub grade shall be scarified and compacted as directed by the geotechnical engineer of the base material. Base material shall be compacted to 95 percent (95%).

Prior to paving operations, the sub grade shall be check rolled to locate any unstable or pumping areas. The areas identified as unstable or pumping by the City Representative shall be stabilized per the direction of the City Engineer.

In areas where placing new base material against existing material, existing material shall be kept in place to the maximum extent practicable. Existing material that becomes loose shall be firmly tamped back into place.

In areas where placing new base material against existing material, existing material shall be kept in place to the maximum extent practicable. Existing material that becomes loose shall be firmly tamped back into place.

MEASUREMENT AND PAYMENT

Full compensation for preparation and implementation of **AGGREGATE BASE** shall be considered as incidental and included in the various items of work that require **AGGREGATE BASE** and no additional compensation will be made therefor.

BID ITEM TECHNICAL SPECIFICATIONS

BID ITEM 1 - MOBILIZATION

Mobilization shall consist of preparatory work and operations including, but not limited to, those necessary for the movement of materials, personnel, equipment, supplies, and incidentals to the project site. The site shall be fully fenced shall be fully contained, in a location approved by the City Representative, with the site. Supply the following submittals as part of Mobilization:

- Project Schedule
- Water Pollution Control Plan
- Traffic Control Plan (if required)

Mobilization shall additionally include the establishment of all temporary and permanent perimeter fencing, fences at the drip lines of trees to remain, obtaining bonds, and the installation of project sign(s) as required by the City.

The permanent chain link fence along property lines of adjacent properties is distinct from mobilization fencing. However, the contractor shall install the permanent chain link fencing during mobilization, and shall invoice the City at the time mobilization fencing is installed.

The City will supply project sign(s). At the end of construction return signs to the City. Any other costs of work in advance of construction operations and not directly attributable to any specific bid item shall be included in the item "Mobilization".

Mobilization shall also include: A Class "B" Field Office, toilet facilities for Field Office, insurance (excluding Earthquake and Tidal Wave); bonds and permits; providing for storage yard(s); moving of all equipment and manpower to the project area; a field office for Contractor and Resident; attendance at meetings prior to or concurrent with the start of work to discuss environmental mitigation; submittal of shop drawings and other required submittals. An up-to-date set of plans shall be maintained on site at all times.

MEASUREMENT AND PAYMENT

Measurement and payment for **MOBILIZATION** will be made at the contract **LUMP SUM** indicated in the Bid Schedule. **MOBILIZATION** shall not exceed \$95,000. **LUMP SUM** payment shall be made at the time of the first progress payment and after the Contractor has purchased bonds and insurance and completed all other mobilization work possible prior to commencement of construction as detailed in these specifications.

Any Mobilization work which extends beyond the first progress payment shall be considered a part of other bid items in the construction work. Any other costs of work in advance of construction operations and not directly attributable to any specific bid item, shall be included in the bid item for mobilization.

BID ITEM 2 – DEMOLITION

SCOPE

This Section covers all wrecking and demolition of site features, together with the removal and disposal of items. Much of the demolition of structures and utilities present as of 1 February, 2016 will be performed by others. The plans and these specifications itemize the demolition work to be performed by others, as well as items included within this bid, for clarification purposes.

Work Included in this Contract:

1. Demolition of trees, vegetation and debris other than listed as "Work Performed by Others". Note trees indicated to be saved and protected. These shall be protected and saved (See "Protection" in this section).
2. Termination, at main, as required by the utility, termination of gas, water and sewer services previously connected to the Farm House (removed by others).

Work Performed by others:

1. Demolition and disposal of House, Barn and Miscellaneous out-buildings, including concrete slabs, walks and foundations.
2. Demolition of septic system.
3. Clean up and dispose of miscellaneous burned debris along fences.
4. Demolition and disposal of fences around house and barn.
5. Relocation of electrical service/meter on house to Porta-pottie temporary power drop near 3rd Street.
6. Domestic well closure and cap.

Although demo work by others is anticipated to be complete by the time Contractor assumes the site, The Contractor shall cooperate with any others (*other* contractors) finishing other demolition work, providing them with access, and scheduling Contractors work to avoid delays or conflict with these efforts by others.

The Contractor shall accept the premises as found and clear the site as specified. The Owner assumes no responsibility for condition of site upon mobilization by contractor, at which time the Contractor will assume risk regarding damage or loss, whether by reason of fire, theft, or other casualty or happening to site. Attention is directed to Solid Waste Management requirements described elsewhere in the contract documents.

SUBMITTALS

1. Provide a list that identifies the landfill, solid waste transfer center or recycling facilities to be used for the disposal of various wastes prior to starting work. Provide the California Solid Waste Information System Number for each facility listed.
2. Mark, identify and provide list of items to be salvaged for reuse within the project, if any.

QUALITY ASSURANCE

Comply with Solid Waste Management requirements. Comply with Monterey Bay Unified Air Pollution Control District Rule 439.

SITE DEMOLITION

METHODS

1. *Preparation:* Prior to disconnecting, removing, plugging or abandoning existing utilities serving the buildings being removed, notify all utility corporations, companies, individuals or local authorities concerned with the work. The only anticipated remaining utilities on site are expected to be the PG&E Gas service and meter, water service and sewer lateral, all of which previously served the house (Removed by others).
2. *Permits:* Obtain permits that may be required demolition in accordance with local and state air pollution control regulations.
3. *Utilities:* Others will have disconnected the electrical service from the farm house (Demo by others) and set a temporary porta-pottie and service near 3rd Street. The Contractor shall assume responsibility for cost and maintenance of this temporary facility through completion of the project and removal of this temporary service. The Contractor shall be responsible to cut off and cap gas, water and sewer services at the mains on the property or in the street as required by the responsible utility company, or local authority or relocate as shown on the drawings. Remove and cut off and plug or cap all utilities except those designated to remain. The Contractor shall coordinate the removal Work with the relocation and/or new Work being performed by all contractors and public utility companies.
4. *Underground Gas Service:* Meter removal and capping or pinching gas service at the street will be performed by the affected franchise utility, Pacific Gas and Electric. Contractor shall schedule work 14 days in advance with utility. Contractor shall remove and dispose remaining underground piping from the existing residence to the edge of adjacent street pavement.
5. *Clark Colony Water Company:* Plug existing pipes at three locations; remove and dispose pipes and appurtenances within the project site. Coordinate with Clark Colony Water Company representative 14 calendar days in advance. Plugging of Clark Colony Water Company Pipe: *Excavate*, bulkhead and plug existing pipes with concrete at locations identified on the plans. Remove silt and debris from pipe, clean and roughen surfaces prior to placing concrete. The concrete plug material shall consist of not less than three lineal feet of Portland cement concrete 520-C-2500P placed

and consolidated to fill the space between the bulkheads. Coordinate all work with Clark Colony (Contact James Thorp (831)970-9125.

6. *Existing concrete and plastic agricultural irrigation pipe found* within the project shall be completely removed and disposed.
7. *Removal:* Unless otherwise noted or specified to be relocated or stored, all materials removed become the property of the Contractor and are to be completely removed from the site. Do not store or permit debris to accumulate on the site. If the Contractor fails to remove excess debris promptly, the Owner reserves the right to cause same to be removed at Contractor's expense.
8. *Workmanship:* Perform all site demolition in a workmanlike manner with due regard for adjacent residential and agricultural land uses.
9. *Demolition Work:* Execute in an orderly and careful manner with due consideration for neighbors and the public. Execute the Work to insure adjacent properties and the public against damages incurred by falling debris or other causes.
10. *Burning of Materials:* Burn no materials or debris on the premises.
11. *Dust control.* Constantly sprinkle all rubbish and debris to lay down the dust.
12. *Temporary Structures:* Remove all temporary structures when they are no longer required.
13. *Traffic:* Conduct operations with minimum interference with roads, streets, driveways, alleys, sidewalks and other facilities. Due to the age of these structures, it is assumed that lead-based paint is present. It is the intent of the Contract Documents to include the abatement of all exterior and interior components with lead-based paint.
 - a. *Testing:* Prior to demolition, procedures shall include testing to verify the existence of lead-based paint in any materials or components being demolished by the Contractor, and preparing a list of components containing lead-based paint which will require specialized disposal.
 - b. *Product testing* shall meet current UL standards. Contractor shall employ a testing laboratory to perform product testing to confirm the use of acceptable materials and methods.
 - c. *Remediate* lead-contaminated materials of any type according to all controlling standards.
 - d. *Dispose* of any lead-based waste material per local, regional and federal standards.

EXAMINATION

Verify that utilities have been disconnected and capped before starting demolition operations.

PROTECTION

Erect a plainly visible fence around drip line of individual trees identified on the plans for PROTECTION

METHODS

1. General: Demolish, and remove materials indicated completely. Use methods required to complete the Work within limitations of governing regulations.
2. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
3. Maintain fire watch during and for at least 2 hours after flame cutting operations.
4. Maintain adequate ventilation when using cutting torches.
5. Locate demolition equipment and remove debris and materials so as not to impose excessive loads on adjacent pavement and drainage structures to remain.
6. Site Access and Temporary Controls: Conduct demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
7. Do not close or obstruct streets, walks, walkways, or other adjacent facilities.
8. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.
9. Explosives: Use of explosives is not permitted.
10. Proceed with demolition systematically, closing open trenches each day and maintaining a neat and safe work site.
11. Salvage: No items are to be salvaged.
12. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

CLEANING

Remove demolition waste materials from Project site [and legally dispose of them in an EPA-approved landfill acceptable to authorities having jurisdiction]. Do not burn demolished materials. Return adjacent areas to condition existing before building demolition operations began.

MEASUREMENT AND PAYMENT

DEMOLITION shall be measured and paid as a **LUMP SUM** item.

The **LUMP SUM** price shall represent full compensation for **DEMOLITION** within the project limits including all labor, equipment, and materials, removal and disposition of materials necessary to perform the work per the plans and specifications.

BID ITEM 3 - STORM WATER POLLUTION CONTROL

SCOPE

The work consists of formulating and implementing the storm water pollution prevention measures to prevent sediment from entering streams or water bodies

as specified in this Section in conformance with the requirements of the State Water Resources Control Board and the requirements of the National Pollutant Discharge Elimination System (NPDES). Provide QSD and QSP services as needed to maintain compliance with requirements of the State Water Resources Control Board. Prepare Storm Water Pollution Prevention Plan (SWPPP) to conform to Contractor's proposed operations. Submit SWPPP to the Owner' Representative for review and approval prior to posting to State Water Resources Control Board website.

SUBMITTALS

1. Draft and final SWPPP.
2. Copy of NOI.
3. Copies of weekly, quarterly and annual reports.
4. Copies of REAP, pre-storm and post-storm inspections.
5. Copy of NOT.

QUALITY ASSURANCE

1. Implement and inspect storm water pollution control measures in accordance with the approved SWPPP.
2. Promptly notify Owner's Representative of deficiencies in BMP measures.

MATERIALS

1. COMPONENTS FOR SILT FENCES
 - a. Filter Fabric: Provide geotextile that complies with the requirements of ASTM D4439, and consists of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. The filament shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of ester, propylene, or amide, and contains stabilizers and/or inhibitors added to the base plastic to make the filaments resistant to deterioration due to ultraviolet and heat exposure. Provide synthetic filter fabric that contains ultraviolet ray inhibitors and stabilizers to assure a minimum of six months of expected usable construction life at a temperature range of 0 to 120 degrees F. The filter fabric shall meet the following requirements:

FILTER FABRIC FOR SILT FENCE		
PHYSICAL PROPERTY	TEST PROCEDURE	STRENGTH REQUIREMENT
Grab Tensile Elongation (percent)	ASTM D4632	445 N min. (100 lbs. min.) 30 percent max. elongation
Trapezoid Tear	ASTM D4533	245 N min. (55 lbs. min.)
Permittivity	ASTM D4491	0.2 sec-1
AOS (U.S. Std Sieve)	ASTM D4751	20-100

- b. Silt Fence Stakes and Posts. Use either wooden stakes or steel posts for fence construction. Wooden stakes utilized for silt fence construction, shall have a minimum cross section of 2 by 2 inches when oak is used and 4 by 4 inches when pine is used, and have a minimum length of 5 feet. Steel posts (standard "U" or "T" section) utilized for silt fence construction, shall have a minimum weight of 1.33 pounds/linear foot and a minimum length of 5 feet.

2. FIBER ROLLS

- a. Fiber roll must have a minimum functional longevity of 1 year.
- b. Fiber roll shall comply with the following requirements:
- i. Type A fiber roll must be fabricated from an erosion control blanket rolled along its width. Secure with natural fiber twine at 6-foot intervals, and 6 inches from each end. Fiber roll size must comply with either one of the following:
 1. 8 to 10 inches in diameter, 10 to 20 feet long, and at least 0.5 lb/ft.
 2. 10 to 12 inches in diameter, at least 10 feet long, and at least 2 lb/ft.
 - ii. Type B fiber roll must be a premanufactured roll filled with rice or wheat straw, wood excelsior, or coconut fiber. Rolls must be covered with biodegradable jute, sisal, or coir fiber netting secured tightly at each end. Fiber roll size must comply with either one of the following:
 1. 8 to 10 inches in diameter, 10 to 20 feet long, and at least 1.1 lb/ft .
 2. 10 to 12 inches in diameter, at least 10 feet long, and at least 3 lb/ft.

3. SAND BAGS

- a. Exterior shell shall consist of durable commercial grade weather resistant tightly woven bags that will prevent leakage of filler materials
- b. Filling shall consist of 75 pounds minimum of firmly packed fine concrete aggregate or pea gravel.

4. BIOFILTER BAGS

- a. Exterior shell shall consist of durable commercial grade plastic mesh bags having minimum size of 18"x6"x30" with ½" openings...
- b. Filling shall consist of approximately 45 pounds of clean recycled wood waste or wood chips.

METHODS

REQUIREMENTS

a. General

- i. The Contractor shall exercise every reasonable precaution to protect channels, storm drains, and bodies of water from pollution.
- ii. Provide protection as required by General Permit 2009-009-DWQ. Include, as a minimum, each component identified on the erosion control plan except where an alternate or substitution of equivalent effectiveness has been approved by the Owner's Representative.
- iii. Conduct and schedule operations to minimize or avoid muddying and silting channels, drains, and waters.
- iv. As required, obtain permits for erosion and water pollution control from the appropriate jurisdictional agency before starting construction. All costs for work required for compliance with this Section shall be included within the Bid Prices.
- v. Provide any necessary water pollution control devices to prevent, control, and abate water pollution, and implement good housekeeping pollution control measures to reduce the discharge of pollutants from construction sites to the maximum extent practicable. These water pollution control devices include drains, gutters, slope protection blankets and retention basins and shall be constructed concurrently with other construction at the earliest practicable time.
- vi. Exercise care in preserving vegetation and protecting property, to avoid disturbing areas beyond the limits of the construction. Promptly repair any damage caused by Contractor operations.
- vii. Comply with the specific requirements based on acreage of disturbed soil.
- viii. Penalties. Failure to comply with this Section may result in significant fines and possible imprisonment. The RWQCB, SWRCB or other prosecuting authority may assess fines of up to \$32,500 per day for each violation. Should the Owner be fined or penalized as a result of the Contractor failing to comply with this Section, the Contractor shall reimburse the Owner for any and all fines, penalties and related costs.
- ix. Notification and Report. If pollution occurs in the construction area for any reason or when the Contractor becomes aware of any violation of this Section,

correct the problem and immediately notify the Inspector and Owner's Representative. In addition, submit a written report to the Owner's Representative within seven (7) calendar days describing the incident and the corrective actions taken. If either the Inspector or Owner's Representative is first to observe pollution or a violation, the Contractor shall also explain in the written report why the construction was inadequately monitored.

- x. The provisions of this Section describe minimum compliance and do not preclude other more stringent storm water pollution control measures that may be required in the Contract.
- b. Definition
 - i. Construction Activity. Includes clearing, grading, excavation, stockpiling, and reconstruction of existing facilities involving removal and replacement. Construction activity does not include routine maintenance such as, maintenance of original line and grade, hydraulic capacity, or original purpose of the facility. If construction activity is part of a larger common plan of development, the amount of disturbed soil is the total land area of disturbed soil that results under the common plan.
- c. Storm Water Management Requirement. Contractor shall comply with the following minimum water quality protection requirements:
 - i. Retain eroded sediments and other pollutants on-site and do not allow transportation from the site by sheet flow, swales, area drains, natural drainage, or wind. Control slope and channel erosion by implementing an effective combination of best management practices (BMPs). Such BMPs include scheduling grading during non-rainy seasons, planting and maintaining vegetation on slopes and covering erosion-susceptible slopes.
 - ii. Protect stockpiles of earth and other construction-related materials from being transported from the site by wind or water.
 - iii. Properly store and handle fuels, oils, solvents, and other toxic materials to not contaminate the soil or surface waters, enter the groundwater, or be placed where they may enter a live stream, channel, drain, or other water conveyance facility. Protect all approved toxic storage containers from weather. Clean spills immediately and properly dispose of cleanup materials. Spills shall not be washed into live streams, channels, drains, or other water conveyance facilities.
 - iv. Do not wash excess or waste concrete into the public way or any drainage system. Retain concrete wastes on-site until they can be appropriately disposed of or recycled.
 - v. Deposit trash and construction-related solid wastes in covered receptacles to prevent contamination of rainwater and dispersal by wind.
 - vi. Do not allow sediments and other materials to be tracked from the site by vehicle traffic. Stabilize construction entrance roadways to inhibit sediments

- from being deposited onto public ways. Immediately sweep up accidental depositions. Do not allow depositions to be washed away by rain or by any other means.
- vii. Contain non-storm water runoff from equipment or vehicle washing and any other activity at the construction site.
 - viii. At completion of the construction, clear the worksite of debris and restore to a condition at least equal to or better than prior to construction.
 - ix. Comply with Project Erosion Control Plans and SWPPP.
 - x. When working in live streams, these are additional water pollution control requirements.
 - xi. Erect barriers sufficient to prevent muddying or polluting streams.
 - xii. Prior to removing materials from a flowing stream, use a stream bypass or other equivalent means to keep the flow in the stream free of the mud or silt from the removal operations.
 - xiii. Avoid transporting materials across live streams. If not possible, the transportation operation must be designed to prevent materials from falling into the stream and cannot muddy the stream.
 - xiv. Equipment may not be operated in a live stream or channel unless the Contractor can demonstrate to the Owner's Representative's satisfaction that no other practical alternatives exist. The equipment must be designed to prevent materials from falling into the stream and cannot muddy the stream.
 - xv. Do not allow fresh portland cement or fresh portland cement concrete to enter the water flowing in streams, channels or drains.
 - xvi. Do not allow material derived from the construction to be deposited in a live stream, channel or drain.
- d. Storm Water Pollution Prevention Plan Requirement. The Contractor shall comply with the requirements included above, and the following requirements:
- i. The Contractor shall comply with General Permit 2009-0009-DWQ for Discharges of Storm Water Associated with Construction Activities (General Permit). A copy of the General Permit may be downloaded from the California State Water Resources Control Board (SWRCB) website using the following link: http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo_2009_0009_complete.pdf.
 - ii. The Contractor shall provide a Qualified Storm Water Pollution Prevention Plan (SWPPP) Developer (QSD) to prepare all Permit Registration Documents (PRDs), including SWPPP, as defined in the General Permit. All PRDs must be uploaded to the SWRCB's General Permit web application called the Storm Water Multiple Application Report Tracking System (SMARTS) prior to commencement of construction activities. The SMARTS website link is: <http://smarts.waterboards.ca.gov>. The PRDs include the Notice of Intent, Risk

Assessment, Post-Construction Calculations, Site Map, SWPPP, and the first annual fee. The annual fee for this project is estimated to be \$665. The Contractor must submit any modifications to the prepared SWPPP to the Owner's Representative for review and approval prior to uploading it to the SMARTS system. Upon Owner approval, the SWPPP shall be uploaded by the Contractor and certified by the Owner's Legally Responsible Person (LRP). At that time, the actual fee invoice will be provided by the Owner to the Contractor and the Contractor will submit payment to the State for the first annual fee. The Contractor is also responsible for all subsequent annual fees for this project.

- iii. This project has been determined to be a Risk Level 2. The Contractor shall comply with all visual monitoring, effluent water quality sampling, reporting, and record keeping requirements associated with this Risk Level, in accordance with the General Permit. For projects with Risk Level 2 or Risk Level 3, the Contractor must prepare and implement a Rain Event Action Plan, as described in the General Permit.
 - iv. The Contractor shall provide a Qualified SWPPP Practitioner (QSP) to implement all SWPPP requirements at the project site and monitor the effectiveness of the SWPPP, in accordance with the General Permit.
 - v. The Contractor shall prepare the Annual Report required by the General Permit and submit it to the Owner's Representative for review and approval by August 1st of each year. The Owner's LRP will certify the Annual Report.
 - vi. The Contractor shall provide and submit all reports and data necessary to complete the Notice of Termination at the completion of the construction, in accordance with the General Permit.
2. FIELD QUALITY CONTROL
- a. Maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition.
 - b. Perform routine inspections to determine condition and effectiveness.
 - c. Restore destroyed vegetative cover.
 - d. Repair of erosion and sediment control measures and other protective measures.
 - e. Use the practices and procedures identified to maintain the protective measures.
3. SILT FENCE MAINTENANCE
- a. Inspect the silt fences in accordance with paragraph, titled "Inspections," of this section. Pay close attention to the repair of damaged silt fence resulting from end runs and undercutting.

- b. Required repairs shall be made promptly. Should the fabric on a silt fence decompose or become ineffective, and the barrier is still necessary, replace the fabric promptly.
 - c. Remove sediment deposits when deposits reach one-third of the height of the barrier.
 - d. Remove and dispose a silt fence when it is no longer required. The immediate area occupied by the fence and any sediment deposits shall be shaped to an acceptable grade. The areas disturbed by this shaping shall receive erosion control.
4. BIOFILTER BAG MAINTENANCE
- a. Inspect the biofilter bags in accordance with paragraph, titled "Inspections," of this section. Pay close attention to the repair or replacement of bags when there is damage resulting from end runs and undercutting.
 - b. Remove sediment exceeding 1 foot in depth.
 - c. Remove and dispose biofilter bags when no longer required. The immediate area occupied by the biofilter bags and any sediment deposits shall be shaped to an acceptable grade. The areas disturbed by this shaping shall receive erosion control.
5. FIBER ROLLS
- a. Before installing fiber roll remove obstructions from the ground, including rocks, clods, and debris greater than 1 inch in diameter.
 - b. Install fiber roll approximately parallel to the slope contour. For any 20-foot section of fiber roll, prevent the fiber roll from varying more than 5 percent from level. Install fiber roll on slopes at the following spacing unless shown otherwise:
 - i. 10 feet apart for slopes steeper than 2:1 (horizontal:vertical)
 - ii. 15 feet apart for slopes from 2:1 to 4:1 (horizontal:vertical)
 - iii. 20 feet apart for slopes from 4:1 to 10:1 (horizontal:vertical)
 - iv. 50 feet apart for slopes flatter than 10:1 (horizontal:vertical)
 - c. Type 1 fiber roll installation consists of placing and fastening as follows:
 - i. Place in a furrow that is from 2 to 4 inches deep.
 - ii. Fasten with wood stakes every 4 feet along the length of the fiber roll.
 - iii. Fasten the ends of the fiber roll by placing a stake 6 inches from the end of the roll.
 - iv. Drive the stakes into the soil so that the top of the stake is less than 2 inches above the top of the fiber roll.
 - d. Type 2 fiber roll installation consists of placing and fastening as follows:
 - i. Fasten with notched wood stakes and rope.
 - ii. Drive stakes into the soil until the notch is even with the top of the fiber roll.
 - iii. Lace the rope between stakes and over the fiber roll. Knot the rope at each stake.

- iv. Tighten the fiber roll to the surface of the slope by driving the stakes further into the soil.
- e. Maintain fiber roll in a manner that provides sediment holding capacity and reduces runoff velocities as follows:
 - i. Remove sediment from behind the fiber roll when sediment is 1/3 of fiber roll height above ground.
 - ii. Repair or adjust the fiber roll when rills or other evidence of concentrated runoff occur beneath the fiber roll.
 - iii. Repair or replace the fiber roll when they become split, torn, or unraveled.
 - iv. Add stakes when the fiber roll slumps or sags.
 - v. Replace broken or split wood stakes.
 - vi. Remove sediment deposits, trash, and debris from fiber roll as needed or when ordered. If removed sediment is deposited within project limits, it must be stabilized and not exposed to erosion by wind or water.
 - vii. Remove and dispose fiber roll when no longer required.

6. DIVERSION DIKE MAINTENANCE

- a. Inspect diversion dikes in accordance with paragraph, titled "Inspections," of this section. Pay close attention to the repair of damaged dikes and repairs promptly.
- b. When diversion dikes are no longer required, shape to an acceptable grade. Seed the areas disturbed by this shaping.

7. EROSION CONTROL

- a. Maintain erosion control until landscape and plant establishment is complete. Seed unlandscaped areas using native seed blend suitable to the project location and hydromulch exposed soil areas at the completion of construction.

8. INSPECTIONS

- i. Inspect disturbed areas of the construction site, areas that have not been finally stabilized used for storage of materials exposed to precipitation, stabilization practices, structural practices, other controls, and area where vehicles exit site
- ii. Inspect at least once every seven (7) calendar days and within 24 hours of the end of any storm that produces 0.5 inches or more rainfall at the site. Conduct inspections at least once every month where sites have been finally stabilized. Conduct inspections more frequently where required for rain event action plan.

- a. Inspections Details
 - iii. Inspect disturbed areas and areas used for material storage that are exposed to precipitation for evidence of, or the potential for, pollutants entering the drainage system.
 - iv. Observe erosion and sediment control measures identified in the Storm Water Pollution Prevention Plan to ensure that they are operating correctly.
 - v. Inspect discharge locations or points to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.
 - vi. Inspect locations where vehicles exit the site for evidence of offsite sediment tracking.
- b. Inspection Reports
 - i. For each inspection conducted, prepare a report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the Storm Water Pollution Prevention Plan, maintenance performed, and actions taken.
 - ii. Furnish the report to the Owner's Representative within 24 hours of the inspection as a part of the Contractor's Daily Report. A copy of the inspection report shall be maintained on the job site.
- c. Monthly Inspection Report and Certification Form
 - i. Complete, sign, and submit the original form, on the first working day of each month, to the State of California, State Water Resources Control Board a copy of the State of California's Monthly Inspection Report and Certification Form for Erosion and Sediment Controls is attached to the end of this section.
 - ii. Furnish, on the first working day of each month, one copy of the form submitted to State Water Resources Control Board to the Owner's Representative as part of the Contractor's Daily Report and attach a copy of the completed form to the Plan. Unless otherwise notified by the Owner's Representative, submit the Monthly Inspection Report and Certification Forms for an additional two months after the final completion of all storm water pollution prevention

MEASUREMENT AND PAYMENT

Compensation for **STORM WATER POLLUTION CONTROL** is on a **LUMP SUM** basis and will be paid according to percentage of completion each month as scheduled by the contractor and approved by the City Representative prior to mobilization. The work includes:

1. Maintaining SWPPP documents, prepare SWPPP, amending SWPPP, preparing NOI, preparing NOT, preparing monthly reports, completing annual reports, and filing all required documents with SWRCB for SWPPP is included in the contract lump sum price for Storm Water Pollution Control.
2. Payment of storm water permit fees is included in the contract lump sum price for Storm Water Pollution Control.
3. Providing all inspections, and all necessary and required services of QSP and QSD during the duration of this contract is included in the contract lump sum price for Storm Water Pollution Control.
4. Implementing, maintaining and removing all construction phase storm water best management practices are included in the contract lump sum price for Storm Water Pollution Control.
5. Compliance with all requirements of the General Permit 2009-0009-DWQ is included in the contract lump sum price for Storm Water Pollution Control.

BID ITEM 4 – ROW/ON-SITE IMPROVEMENTS

CURB AND CURB AND GUTTER

SCOPE

This section consists of furnishing all labor, materials and equipment necessary and incidental to constructing concrete curbs, curbs & gutter, tactile warning surfaces, AC paving, sidewalk, ramps, striping and signage at the corner of 3rd and Apple Streets and along Apple Street within the Right of Way and within the site at locations shown on Sheet C1.3, PARKING LOT DETAIL and CURB RETURN AND INTERSECTION DETAIL and as specified by the City Representative.

SUBMITTALS

1. Compliance: Submit Mix Designs for Review and approval by the Engineer.
2. Submit manufacturers' and Supplier's Certification and test reports that materials delivered to the site are in compliance with the specifications.

QUALITY ASSURANCE

1. Establish and maintain required lines and elevations. Make gradual and smooth transitions to existing curbs, gutters and sidewalks, etc.

MATERIALS

Materials for concrete curb shall conform to the requirements of Section 201-1, 201-3, 201-4, 201-5, 204-1, 200-2.4 and 303-5 of the Standard Specifications.

1. Concrete for Curbs shall be Class 520-C-2500.
2. Concrete curing compound shall be Type 1-D - clear or translucent with fugitive dye and shall comply with the requirements as set forth by 201-4.1 of the SSPWC. Application rate shall be one gallon per 150 square feet.
3. Each load of PCC shall be placed within 1.5 hours after it is batched at the plant. Additionally, PCC shall be less than 32°C (90°F) when placed.
4. All PCC not meeting these requirements shall be rejected.
5. CMB to backfill the open slot when exposed for curb and gutter removal and asphalt pavement.

METHODS

Concrete curb shall be constructed to the lines and grades shown on the plans and shall comply with the construction methods set forth in and Section 303-5 and Section 301 of the Standard Specifications.

PLACEMENT OF ASPHALT CONCRETE PAVING

SCOPE

This section consists of furnishing all labor, materials and equipment necessary and incidental to placing asphalt concrete and constructing asphalt concrete pavement to the limits and at the locations shown on the Contract Drawings and as directed by the Engineer.

SUBMITTALS

1. Compliance: Submit Mix Designs for Review and approval by the Engineer.
2. Submit manufacturers' and Supplier's Certification and test reports that materials delivered to the site are in compliance with the specifications.

QUALITY ASSURANCE

1. Establish and maintain required lines and elevations. Make gradual and smooth transitions to existing pavement.

Materials not meeting the requirements shall not be used in the work.

MATERIALS

Asphalt binder emulsion for use as a binder (tack coat) shall be SS-1h, and shall be applied at the rate of 0.8 gallons per square yard to the entire resurfacing area designated for new pavement. Asphalt emulsion shall comply with the requirements as set forth by 203-3 of the SSPWC.

Asphalt concrete (AC) shall comply with the requirements as set forth by section 203-1 and 400-4 of the SSPWC and shall be as follows, unless otherwise indicated:

AC III-D-PG-64-10 3/8" maximum.

Materials for Crushed Aggregate Base shall conform to Table 200-2.2.2 of the SSPWC.

METHODS

All work shall conform to 302-5 of the SSPWC. The work shall further consist of preparing sub grade prior to the paving. Such work shall include controlling nuisance water, watering, and removing loose and broken asphalt concrete pavement and foreign material as specified or as required by the Engineer.

Pavement sub grade shall be compacted to 95 percent (95%) relative compaction at least one foot deep prior to placement of the pavement section.

Prior to paving operations, the sub grade shall be check rolled to locate any unstable or pumping areas. The areas identified as unstable or pumping by the Engineer shall be stabilized per the direction of the Engineer.

As shown on the plans, where new asphalt concrete pavement is placed against existing pavement, the existing pavement shall be saw cut along neat vertical lines. AC pavement shall be removed to clean, straight saw cut lines. The exposed edges of the existing pavement surfaces shall be painted with asphalt tack coat in accordance with 302-5.4 of the SSPWC.

MEASUREMENT AND PAYMENT

ROW IMPROVEMENTS INCLUDING ON-SITE IMPROVEMENTS FOR PARKING, CURB, SIDEWALK, TACTILE WARNING SURFACES, STRIPING, RAMPS AND SIGNAGE shall be measured and paid for at the **LUMP SUM** price bid.

The work includes, but is not limited to, traffic control, sub grade preparation, aggregate base, saw cutting longitudinal and transverse cold joints, furnishing, placing and compacting materials required, and any corrective work.

The price paid shall include full compensation for furnishing all labor, materials, tools, equipment, incidentals, and for doing all work involved in constructing concrete curb, gutters, sidewalks, ramps etc. complete in place, as shown on the plans and as directed by the Engineer.

BID ITEM 5 – EARTHWORK and DISPOSITION OF ROCK AND COBBLE

SCOPE

Earthwork includes clear and grub, excavation, and preparation of subgrade by scarification and compaction prior to placing fill, placement of fill in lifts, shaping surfaces and placement of import topsoil. Earthwork also includes fine grading, disposition of rock and cobble, excavation and backfill for trenches, structures and other appurtenances, and the placement of import topsoil at locations identified by the landscape plans, specifications and through agronomic analysis.

Contractor's attention is directed to onsite rock and cobble, and the processing and management requirements of these specifications. Surface soils may not be representative of the rock and cobble proportion that will be encountered at the required depth of excavation. Processing and managing on-site rock and cobble as require by the project plans and these specifications is considered as included in the earthwork item of work. No additional compensation for differing site conditions will be made on account of rock and cobble encountered during the work.

Process, separate, remove and manage rock and cobble encountered during the earthwork in accordance with the project plans and these specifications. Rock and cobbles between 4" and 8" shall be stockpiled and spread atop an approved geotextile blanket as a decorative surface along Apple Avenue, as shown on Sheet L5.1 (Planting Plan) and as directed by the City Representative or

removed from the site at the contractor's choice and at no additional cost to the City.

The intention of the project earthwork and grading is to balance cut and fill on-site. Contractor shall continuously coordinate the Owner's Representative and Landscape Architect during earthwork construction to adjust or modify contour grading finish surfaces identified on the plans as necessary to meet this objective. The City Representative shall work with the contractor to balance cut and fill. The final height of earthwork mounds will be adjusted as necessary.

Proposed contours and spot elevations included on the grading plan and control plan are finish grades. Contractor is responsible to locate and provide cavity space for hardscape, fall protection surfaces, and foundations. Make allowance for any import topsoil and soil amendments required by the landscape plans and specifications.

Perform independent evaluation of earthwork quantities and monitor earthwork operations regarding projecting final earthwork volumes. Communicate regularly with Owner's Representative regarding projected quantities and any need to adjust grading surfaces to accommodate excess or deficient earthwork fill quantities.

SUBMITTALS

1. For information only, provide narrative description of proposed equipment, construction methods and grading sequence for earthwork operations prior to commencement of grading operations.

QUALITY ASSURANCE

1. Coordinate with Owner's Representative for compaction testing.
2. Soils samples were not taken for this project.

REFERENCES

1. *California Building Code, 2013 edition*, California Building Standards Commission.
2. ASTM D1557-12, "Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)), " ASTM International

METHODS

Grading and earthwork shall conform to the requirements of Section 3304, "Site Work," and Appendix J, "Grading," of the 2013 California Building Code.

Earthwork shall be in accordance with Section 300-1, Section 300-2, "Unclassified Excavation," and 300-4, "Unclassified Fill," of the SSPWC and these special provisions. Attention is directed to Section 211-1, "Compaction Tests," of the SSPWC and its definition of 'Relative Compaction'.

Verify that all required BMP measures are implemented and remain effective during earthwork cut and fill operations.

Spread fill in horizontal loose lifts not exceeding 8 inches, moisture condition to near optimum moisture content and compact 90 percent relative compaction. Continue densification to 95 percent relative compaction within specific regions identified on the project plans.

Complete fill and finish grading to provide allowance for hardscape, foundations, fall protection, topsoil and other final surface features. Coordinate actual depth of topsoil with Owner's Representative and Landscape Architect based upon available topsoil volume and anticipated soil amendments.

Finish all completed grading surfaces to conform with adjacent improvements and maintain positive slope and gradient to provide continuous drainage to inlet or designated sump location.

Trench excavation, bedding and backfill shall conform to the requirements of Sections 306-1.1, "Trench Excavation," 306-2.1, "Bedding," and 306-1.3, "Backfill and Densification," of the SSPWC except that jetting will not be allowed for densification of backfill.

ONSITE ROCK AND COBBLE

The following paragraphs address requirements for onsite rock and cobble as it relates to earthwork. The soils on site, as with most Greenfield soils, have a large percentage of cobbles. As the parcel has been farmed, cobbles and soil have been piled in various locations on site, including but not limited to the area along the northerly side of Apple Avenue.

The contractor shall inspect the soils on the project site and satisfy him/herself concerning the nature and characteristics of the soils so as to provide an informed and accurate bid for this work. Processing and managing on-site rock and cobble as require by the project plans and these specifications is considered as included in the earthwork item of work. No additional compensation for differing site conditions will be made on account of rock and cobble encountered during the work.

Surface soils may not be representative of the rock and cobble proportion that will be encountered throughout the required depth of excavation.

Existing mounds of Cobble and soil found onsite including along Apple Avenue may be integrated/mixed into the site grading as long as the percentage of soil to cobble approximates the general soils on site, or if the % cobbles is greater, it may be mixed with onsite soils to provide suitable fill.

In all areas to receive turf, and in play areas to receive softfall material, cobbles exceeding 4" diameter shall be removed to a depth of 8". Contractor shall either:

1. Remove cobbles exceeding 4" dia. To a depth of 8". Although the method of removal is at the discretion of the contractor, one acceptable method would be to rip to a depth of 8" with tines set at 4" apart and "rake" these cobbles into piles to be removed offsite or washed and placed in a landscape area location as directed by the LS Architect. Regrade and compact remaining soil as necessary to achieve a relatively uniform depth of soil free from cobbles greater than 4" diameter; or
2. After grading and removal of all loose surface cobbles to a depth 4" below determined grade of soil, and add 4" imported or otherwise process topsoil that is free from 4" or greater rock/cobble.

Inspect site and remove all loose cobble occurring on the finished graded surfaces of all other Landscape areas following completion of site grading.

Cobbles may be disposed of onsite in the following manner: Cobbles placed in landscape areas as a decorative material if washed and spread atop an approved geotextile blanket as a decorative surface along Apple Avenue or other locations as directed by the City Representative. Or cobbles may be removed from the site at no additional cost to the City. Again, the intention of the project earthwork and grading is to balance cut and fill onsite.

Contractor shall continuously coordinate the Owner's Representative and Landscape Architect during earthwork construction to adjust or modify contour grading finish surfaces identified on the plans as necessary to meet this objective. The City Representative shall work with the contractor to balance cut and fill. The final height of earthwork mounds/contours will be adjusted as necessary.

Proposed contours and spot elevations included on the grading plan and control plan are finish grades. Contractor is responsible to locate and provide the required depth/cavity space for materials including hardscape, fall protection surfaces, base or sand as specified and foundations. Make allowance for any import topsoil and soil amendments required by the landscape plans and specifications.

Perform independent evaluation of earthwork quantities and monitor earthwork operations regarding projecting final earthwork volumes. Communicate regularly with Owner's Representative regarding projected quantities and any need to adjust grading surfaces to accommodate excess or deficient earthwork fill quantities.

SUBMITTALS

1. For information only, provide narrative description of proposed equipment, construction methods and grading sequence for earthwork operations prior to commencement of grading operations.

MEASUREMENT AND PAYMENT

EARTHWORK and DISPOSITION OF ROCK AND COBBLE will be measured and paid as a **LUMP SUM** item including topsoil management, excavation, placement or disposal of rock and cobble, scarification, placement of fill material, compaction, restoration of topsoil, and final finishing.

Trench excavation and backfill shall be considered as incidental and included in the various items of water, sewer, drainage and other construction that require excavation and backfill and no additional compensation will be made therefor.

BID ITEM 6 – BOULDERS

SCOPE

Boulders shall be placed as shown on the plans and in conformance with these special provisions.

MATERIALS

Boulders shall be earth tone (not salt and pepper) and without sharp facets. They shall be from a nearby quarry. They shall be of equal or larger size as scaled on the plans except that no boulder shall be less than 18" in diameter in its narrowest

measure and no longer than 66" in its greatest length. Boulders shall be clean and smooth.

The City Representative shall select the boulders at the quarry with the Contractor's representative prior to purchase. Provide 3 day notice to representative.

METHODS

Boulders shall be buried at least 1/3 their vertical height with the widest portion of the boulder set in the ground. Selection and Placement shall be as approved by the City Representative. Where boulder surfaces adjoin the line of flatwork, they shall be placed prior to pouring the concrete.

All boulders shall be set in place within 6"- 9", horizontal, of what is shown on the plans. Vertical heights for seating boulders shall be between 14" and 24" above finish grade. The positioned boulders shall be observed and adjusted by the City Representative prior to pouring the footing or setting in grade.

MEASUREMENT AND PAYMENT

The contract **UNIT PRICE PER TON** paid for **BOULDERS**, shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, including aggregate base, and for doing all the work involved in purchasing, transporting, storing and installing **BOULDERS**, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, as shown on the plans and as directed by the City Representative.

BID ITEM 7 - SITE UTILITY CONNECTIONS: SEWER & WATER

WATER

SCOPE

This section covers construction of new water supply system including water service connection, water meter and appurtenances, backflow device and site piping for water.

SUBMITTALS

1. Manufacturer's cut sheets for all materials used in construction of water service, backflow device and piping.
2. Methods for pressure and leak testing water service and onsite pressure piping.
3. Methods for disinfecting, bacteriological testing and flushing water service and site piping.

QUALITY ASSURANCE

1. Document and provide results of pressure testing.
2. Provide results of bacteriological testing.
3. Test backflow device and provide report of testing.

MATERIALS

All materials for potable water service and piping shall be NSF 61 compliant and be third party certified as conforming to NSF 372 and California State requirements for "lead free" pipe, fitting, fixtures, solder and flux.

Pipe:

1. Copper tube shall be Type K soft tempered conforming to ASTM B88
2. PVC pipe shall be Schedule 80 in accordance with ASTM D1785.

Fittings and Appurtenances:

1. PVC pipe fittings shall be schedule 80 socket fittings conforming to ASTM D 2467.
2. Valves, fittings saddles and service settings for water service connection between the main and the meter box shall conform to AWWA C800.
3. Solder shall be lead-free and conform to ASTM B32.
4. Flux shall conform to ASTM B813
5. Solvent cement for PVC pipe shall be low VOC conform to ASTM D2564.
6. Primer for PVC pipe joints shall be low VOC purple color conform to ASTM F656.
7. Trace wire for PVC pipe shall be 12 gage copper.
8. Water meter shall be 2 inch size conforming to AWWA C700.
9. Meter box shall be N36 provided with flush steel lid and round reader as manufactured by Oldcastle Christy Concrete or equal as approved by the Owner's Representative. Cover shall be marked 'WATER'.
10. Double check assembly shall be 950XLT2-S as manufactured by Zurn Wilkins or equal as approved by the Owner's Representative.
11. Backflow security cage shall be Gorilla Cage GC-3 as supplied by Gorilla Manufacturing with green powder coated finish.

Pipe Bedding and Backfill:

1. Pipe bedding and shading shall be angular sand bedding having a sand equivalent equal or greater than 30.
2. Detectable Trench Warning Tape shall be 2 inch width x 5 mil AWWA color code blue with water legend conforming to NTSB-PSS-73-1.

METHODS

Potable water pipeline and service shall be constructed in accordance with requirements of the California Plumbing Code and these specifications.

Layout location of proposed water piping and review with Owner's Representative five working days prior to starting construction.

Excavate and backfill trenching in accordance with requirements for Earthwork of these specifications and details included in the project plans. Provide for mechanical compaction of all trench bedding and backfill.

Water service shall consist of strap saddle, bronze ball valve corporation stop, 2 inch copper tube, fittings, bronze ball valve angle meter valve, water meter, ball valve, meter box, and meter box cover. Meter box shall be set to prevent undue stress from normal and traffic loading on the meter, curb stop, fittings and piping. Meter box shall be installed over meter such that the meter may be easily read through the reading lid of the cover.

Install backflow device in accordance with referenced details using copper pipe tube and sweated fittings. Wrap copper tube with plastic plumbing tape where installed in contact with concrete. Furnish and install cage and concrete pad for backflow device per the project plans.

Construct PVC site piping in accordance with the California Plumbing Code, applicable provisions of Section 306-1, "Open Trench Operations," of the SSPWC and the following requirements:

1. Construct pressure piping with 30 inch minimum cover from finish grade.
2. Construct site piping in accordance with ASTM F1668 and applicable requirements of Section 308-5, "Irrigation System Installation," of the SSPWC.
3. 'Snake' pipe in trench to provide for thermal expansion and contraction.
4. Fabricate pressure-tight solvent-cement joints using a two-step process with primer and solvent cement in accordance with ASTM D2855. Apply primer to surface of pipe and fitting is softened. Solvent cement shall be applied to all joint surfaces and joint shall be made while both socket and outside surfaces are wet with solvent cement. Joints shall be held undisturbed until initial set of cement is complete.

Flush and disinfect all pipelines in accordance with Section 609 of the California Plumbing Code.

Backflow device shall be tested and certified by a certified backflow assembly tester in accordance with City of Greenfield Water Division Back-Flow Prevention Program requirements.

SEWER

SCOPE

This section covers construction of new site supply system including sewer lateral connection to existing main.

SUBMITTALS

1. Manufacturer's cut sheets for all materials used in construction of sewer lateral, cleanout and piping.
2. Jointing procedures for gasket pipe and fittings.
3. Methods for pressure and leak testing sewer piping.

QUALITY ASSURANCE

1. Document and provide results of pressure testing.
2. Provide video inspection of all site sewer and lateral.

MATERIALS

Materials for sewer construction shall conform to the following requirements:

1. PVC pipe and fittings shall be rubber gasket bell and spigot conforming to the requirements of Section 207-17, "PVC Plastic Pipe," and 208-4, "Gaskets for Thermoplastic Pipe," of the SSPWC.
2. Cleanout box shall be G03 provided cast iron lid as manufactured by Oldcastle Christy Concrete or equal as approved by the Owner's Representative. Cover shall be marked 'SEWER'.
3. Pipe bedding and shading shall be angular sand bedding having a sand equivalent equal or greater than 30.
4. Detectable Trench Warning Tape shall be 2 inch width x 5 mil AWWA color code green with sewer legend conforming to NTSB-PSS-73-1.

METHODS

Site sewer and lateral shall be constructed in accordance with requirements of the California Plumbing Code and these specifications.

Layout location of proposed sewer piping and review with Owner's Representative five working days prior to starting construction.

Excavate and backfill trenching in accordance with requirements for Earthwork of these specifications and details included in the project plans and the SSPWC. Provide mechanical compaction of trench bedding and backfill materials.

Construct sewer lateral from main to property boundary in accordance with City of Salinas Standard Plan 32 and Section 306, "Underground Conduit Construction," of the SSPWC.

Construct PVC site sewer piping in accordance with the California Plumbing Code and applicable provisions of Section 306-1, "Open Trench Operations," of the SSPWC.

Upon completion of the work video inspect site sewer lines and lateral.

MEASUREMENT AND PAYMENT

SITE UTILITY CONNECTIONS: SEWER & WATER will be measured and paid as a **LUMP SUM** item including sewer lateral, site sewer cleanout including wye, riser, cleanout box and cover, water service between main and meter box, backflow device with appurtenances, piping and site water and sewer piping. Trench excavation and backfill shall be considered as incidental and included in the various items of water, sewer, drainage and other construction that require excavation and backfill and no additional compensation will be made therefor.

The contract **LUMP SUM PRICE** bid for **SITE UTILITY CONNECTIONS: SEWER & WATER** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in purchasing, transporting, storing and installing **SITE UTILITY CONNECTIONS: SEWER & WATER**, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, as shown on the plans and as directed by the City Representative.

BID ITEM 8 - ELECTRICAL

SCOPE

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and supplementary Conditions and Division-1 Specifications sections, apply to work of this section. Section 16000

GENERAL

All material, qualified workers, transportation, equipment, coordination and continuous supervision by a qualified electrical superintendent to provide

complete electrical system installation shall be furnished as specified herein, as shown on the drawings, as implied and as required by serving utility companies and governing agencies.

The work of this section includes, but shall not be limited to, provision of the following:

1. Coordinate with serving utility companies for Power service. Applications for service including service charges are part of this contract.
2. Underground power utility service system. Perform work in accordance with the requirements of the serving utilities companies.
3. Meter/Main and Branch circuit panelboard and feeders.
4. Branch circuit wiring, connections and devices for all equipment, outlets, and lighting systems.
5. Lighting fixtures, lamps, ballasts, transformers, hangers, supports, standards, bases, and accessories.
6. Lighting control equipment.
7. Temporary power during construction.

Visit the site area prior to bidding to determine all existing conditions in order to provide all work and materials necessary for a complete electrical system installation.

PERMITS AND INSPECTIONS FEES:

Apply and pay for all necessary permits and inspection fees.

CODES AND REGULATIONS

The electrical work of this section shall be installed in strict compliance with all current requirements of the National Electrical Code, Title 8, 19, and 24 of all State of California, the regulations of the State Fire Marshal, and applicable local codes or ordinances. The requirements of the aforementioned authorities or regulatory bodies shall be construed to be the acceptable minimum and more restrictive requirements may be imposed by either the drawings or hereinafter by these specifications. In case of conflict between codes, the more demanding shall apply, and in the event that the code requirements are ambiguous, the Architect shall be the sole judge as to the intent of the code.

TESTS AND GUARANTEES:

If so requested by the Architect at any time prior to final acceptance, provide satisfactory evidence, including all testing deemed necessary to substantiate that equipment, materials, or installation methods are in conformance with the plans

and specifications. Any equipment, materials, or installation methods failing to meet the required standards shall be immediately replaced at no cost to Owner.

Upon job completion all electrical loads and controls shall be tested under full operating conditions and all defective materials, equipment, devices, or faulty workmanship shall immediately be repaired and/or replaced at no cost to Owner.

MATERIALS AND EQUIPMENT STANDARDS

All materials and equipment shall, where applicable, conform with standards promulgated by the latest publications of the following bodies:

1. Underwriters Laboratories (UL).
2. National Electrical Manufacturer's Association (NEMA).
3. Electrical Testing Laboratories (ETL).
4. American National Standards Institute (ANSI).
5. Insulated Power Cable Engineers Association (IPCEA).
6. Institute of Electrical and Electronic Engineers (IEEE).

Order and obtain all equipment and materials in a timely manner so that no delays are caused. Special consideration shall be given to service and distribution equipment, major items of equipment and materials, lighting fixtures and all long lead time items. Order releases and expected delivery dates for all materials and equipment shall be posted in a written form with the project superintendent and shall be available to the Architect upon request.

All materials shall be new and delivered to the job site in unbroken packages. Make all necessary arrangements for the storage and protection of equipment and materials in designated areas. Be responsible for all materials damaged during the period of storage, transportation, construction, or testing and immediately replace any equipment or materials which are damaged.

SUBSTITUTIONS:

Reference to specific manufacturers and catalog numbers is intended to establish the required standard. Substitutions may be approved if submitted in accordance with bidding documents and if they are determined by the Architect to be equal to that specified in quality, performance, and appearance. If substitutions are accepted for use on this project, the requirements of the drawings and specifications shall not be relieved. Requests for substitutions must be accompanied by literature that completely describes the proposed substitution and clearly indicates all variances. Samples shall be furnished if requested.

In addition to the test of "being equal", any approved substitution shall provide a substantial benefit to the Owner, as determined by the Architect. No approval of substitutions shall be provided before bid. As such, bid comparisons must be made based on specified equipment.

SHOP DRAWINGS

Submit (4) copies of fully descriptive manufacturer's literature and specifications to the City Representative for all lighting fixtures, cables, mounting and termination hardware, devices, branch circuit components, electrical equipment, communications and control equipment, materials, raceway components and all accessories. Each copy shall be individually bound and provided with typewritten cover that lists the project title and describes the contents. Review and acceptance of each item of equipment shall be obtained prior to release of any order and for installation on this project. City Representative reserves the right to reject any submittal based on incompleteness of the submittal, as well as not meeting the requirements of the plans and specifications. Submittals must be provided for specified equipment, as well as any substitutions.

VERIFICATION OF DIMENSIONS

Throughout the entire course of the construction be responsible for the verification of the dimensions of available space for and access to electrical equipment.

IDENTIFICATION MARKINGS

Switchgear, switchboards, panelboards, terminal and control cabinets, motor starters, relays, contactors, control and disconnect switches, time switches and miscellaneous electrical equipment shall have laminated black on white machine engraved plastic nameplates properly identifying each item. Engraved plates shall match existing, where they occur. Use white letters on red background for plates marking equipment on emergency or standby power systems.

All receptacle outlets, switch plates, and disconnects shall be labeled with their panel and circuit number. Labels shall be tape type. Labels on normal power shall use white or black letters on a clear or colored background. The background shall not be red. Labels on back-up or emergency power systems shall use a red background.

All pull and junction boxes that are in concealed or unfinished areas shall have their covers labeled with the circuits or feeder names that are contained in the box.

COOPERATION WITH OTHER CRAFTS

Coordinate work within this section and that of all other sections whose activities and work adjoin or are affected by this work. Study all pertinent documents, and consult with the affected sections in order avoid omissions, conflicts, errors or delays.

CLOSING-IN OF UNINSPECTED WORK

Do not permit work to be covered up or enclosed until it has been inspected, tested and approved by the Architect. Should any such work be enclosed before inspection, it shall be uncovered at no cost to Owner. After it has been tested and approved, make repairs with such materials as may be necessary to restore the work and that of the other trades to its original and proper condition.

SAFETY PRECAUTIONS

The responsibility for the safety and good condition of all materials and equipment for the entire installation, until completion of the work shall be included with the work of this contract. Erect and maintain approved and suitable barriers, protective devices and warning signs and be fully responsible for any loss or injury to persons or property resulting from neglect in maintaining and/or enforcing all safety precautions and warnings.

CLEANING AND PAINTING

All parts of the building and site shall be kept free from accumulations of rubbish or waste materials caused by this work and shall be removed from the building site.

All parts of electrical equipment or apparatus which are not to be painted shall be thoroughly cleaned of plaster, cement and other foreign materials and left smooth, clean and dry. Finish painting is included in the painting contract.

All plates, covers, and devices which are to retain the factory finish shall be removed and reinstalled after painting and plastering is completed.

OPERATING AND MAINTENANCE INSTRUCTIONS

Upon completion of the work, supply three copies of complete operating and/or maintenance information and instructions including wiring diagrams for all electrical and other equipment which can be reasonably expected to require such material for proper operation and care. This will include such items as switchgear, metering equipment, rotating electrical equipment, sound systems, signal, alarm systems, etc.

WATERPROOFING

Wherever any electrical work pierces any waterproofing or waterproofing membrane, it shall be installed in an approved watertight manner.

TRENCHING

This section shall be responsible for all trenching, saw cutting and patching for electrical conduits and ducts including backfilling, compaction and removal of excess earth. Determine the location of all buried pipes and underground systems before the ditching is started and be responsible for all damages to existing systems during the trenching process. Comply with excavation, backfill and compaction requirements in the EARTHWORK Section.

DRAWINGS

For the purpose of clearness and legibility the drawings are essentially schematic and although the size and location of equipment is shown to scale wherever possible, make use of all data in all contract documents and verify this information at the building. The exact location of all conduits, outlets and equipment shall be determined by details, shop drawings and/or as directed.

The drawings show the required sizes and points of termination of the raceways, number and size of wires and suggest the proper routes to conform to the structure and avoid obstructions. However, it is not the intention of the drawings to show all necessary bends and offsets. It is the responsibility of this section to install the raceways in such a manner as to conform to the structure, avoid obstructions, preserve headroom, keep openings and passageways clear and be concealed within the building construction wherever possible.

It is intended that outlets shall be located symmetrical with architectural elements notwithstanding the fact that locations shown on the drawings may be distorted for clearness in representation.

Locations shown on architectural drawings take precedence over those shown on electrical drawings. Particular attention is directed to reflected ceiling plans and elevations.

Before submitting the bid, examine all other pertinent drawings and specifications for electrical requirements which are not necessarily indicated on the electrical drawings and include a sum sufficient to cover the cost of these requirements.

Upon job completion, deliver to Architect, one set of Record Documents which clearly indicates all variances from the specified systems and accurately locates all buried conduit and termination points of all stub-outs. These plans shall be

delivered in electronic format as PDF and AutoCAD 2004 format or any version of AutoCAD previous to 2004.

MATERIALS AND METHODS

UTILITY SERVICES

Finalize electrical service arrangements including verification of locations, coordination of the installation, and payment of accrued charges with local power company. Verify location of facilities and details with power, telephone, and cable T.V. companies. In addition to requirements shown on Drawings and Specifications, work shall comply with construction standards and service requirements of respective utilities, including any supplementary drawings issued by utilities, and shall be subject to inspection approval of these utilities.

All service charges shall be paid for by this section.

METER/MAIN:

All switchboard assemblies shall be built and tested to accordance with all applicable NEC, NEMA, ANSI, and Underwriter Laboratories standards.

All connections, termination, grounding, and hardware assemblies shall be checked by an experienced switchboard installer prior to energization. Each connection point or fastener shall be aligned and torqued in accordance with the manufacturer's specifications. Anchor each section to floor and wall.

BRANCH CIRCUIT PANELBOARDS:

Provide 120/240 Volt, 1-phase, 3-wire branch circuit load centers equal to Square D type "QO", complete with all circuit breakers, busing, and accessories as shown on the drawings.

Panelboard trim fronts shall be flush for recessed locations. Recessed panelboards trim fronts shall have concealed hinges and trim clamps with master-keyed flush latches. All trim fronts shall be equipped with interior holders for circuit directory cards. Directory cards shall be neatly typed, listing description and location each circuit serves. Machine engraved nameplates are required for each panelboard.

All circuit breakers shall be full size, thermal-magnetic, molded case types. Multi-pole breakers shall be supplied with common trip mechanisms with single toggle operators. Circuit breakers serving High Intensity Discharge (HID) light fixtures shall be designed and rated for operation with HID loads. Circuit breakers used to switch lighting circuits shall be approved and labeled for "SWD" loads. Approved locking devices shall be furnished for all circuit breakers controlling remote motor,

lighting and special loads as shown and for all circuits as required by the inspection authorities.

All recessed panelboards shall be provided with accessible empty conduit stubs to ceiling areas and to open areas under floors. Provide an 1" EMT conduit-only stub for five spares or spaces and a 3/4" EMT conduit-only stub for each additional four spares or spaces. These conduits shall be stubbed up for all panelboards and also stubbed down for panelboards located above floors with interstitial or open spaces below.

DISCONNECT (EXO) SWITCHES:

Provide where shown on the drawings and where required by code for individual motors, equipment and appliances, general duty safety switches. Switches shall be motor rated complete with properly sized Buss "Low-Peak" dual element fuses. All switches shall be UL listed and provided with NEMA enclosures. Switches installed in outdoor or damp areas shall be NEMA class 3R. Fuses shall be sized to suit the equipment load requirements.

Provide all required mounting and supporting hardware. Switches mounted at mechanical equipment shall be mounted on separate galvanized steel structures with engraved nameplates and with code required clearances.

CONDUITS AND FITTINGS:

Conduit for power, lighting, control and signal systems shall be as follows:

PVC schedule 40 shall be used for "in-ground" or "in-slab" locations. Bonding conductors shall be installed in all electrical runs.

Conduits installed within buildings construction (non-masonry areas) shall be steel type "EMT". Conduit runs above ceilings, and in attic spaces shall be type "EMT".

Limited use of flexible, galvanized steel and non-metallic type "ENT" and "EFT" conduits are acceptable if installed concealed within plaster or plasterboard enclosed walls or joist spaces. Flexible conduit length shall be a maximum of 15'-0", be limited to a single change in direction of 90 degrees and a total directional changes of 270 degrees.

Flexible galvanized steel, branch circuit conduits in excess of 6'-0" in length shall be provided with an approved bonding conductor. This is in addition to the required ground conductor within the conduit. Flex connections to non-liquid

handling equipment are approved if installed in dry areas within equipment, storage rooms or in cabinet spaces.

Type "ENT" conduits shall be UL approved for electrical wiring and shall be equal to Carlon "flex-plus". Branch circuit wiring shall be limited to 300 volts (phase to phase).

Type "EFT" conduits shall be equal to Carlon "Carlex". "EFT" conduit use shall be limited to "low voltage" (30 volts or less) systems other than fire alarm or emergency signal systems.

Liquid-tight flexible steel conduits shall be provided for all motor and liquid handling equipment connections (interior and exterior locations).

All exposed conduits less than 6' above floor, or where exposed to potential physical damage, shall be rigid galvanized steel. Conduits in "above roof" areas shall be rigid galvanized steel.

EMT fittings shall be steel set-screw or compression types only.

All conduits shall be sized to accommodate the necessary wires as indicated on the drawings or oversized if so indicated. Pull cords of adequate size shall be installed in all empty conduits.

Conduit raceway system shall be mechanically and electrically continuous throughout.

Conduits shall be securely fastened to the building construction within three feet of each outlet or cabinet and within every ten feet thereafter.

CONDUCTORS

1. Wire shall be new in unbroken reels or containers and of recent manufacture. It shall bear the Underwriter's label, the manufacturer's trademark and type and size of wire. Conductors shall not be installed in any conduit system until the following has been performed:
 - a. Conduit system has been inspected and approved.
 - b. Plastering has been completed in respective areas.
 - c. Conduit system is free of dirt and moisture.
2. Conductors shall be continuous between outlets, without splices, except in outlets or junction boxes.
3. Conductors shall be copper. Aluminum conductors are not allowed.

4. All wire and cables for use on voltage up to 600 Volts shall conform to the following:
 - a. Wire smaller than #12 AWG shall not be used except for signal or control circuits, and fixture wire may be used as noted below.
 - b. Sizes up to and including #6 shall be type THHN or type THWN in areas exposed to water. Sizes larger than #6 shall be type THW or THWN.
5. Conductors installed within the channels of continuous fluorescent fixtures shall be of a type approved for this issue.
6. Where abnormal temperature or conditions prevail, suitable conductors shall be provided in accordance with the code authority.
7. Fixture wire shall be of the size and type approved by ordinances and Underwriter's Laboratories for the fixture used. It shall be limited in length to factory installed pigtails except where otherwise required for recessed fixtures.
8. Connections shall be made without strain on the conductors and all strands of wire shall be included in the splice or termination. Connections shall be made by one of the following methods:
9. All taps to connections or conductors shall be made with compression type connectors except those smaller than #8 may have soldered connection. Solderless connectors for #10 or smaller, including fixture connectors, shall be equal to "Scotch Lok". For #8 or larger, connectors shall be equal to T & B "LockTite".
10. All cable or conductor terminal lugs shall be of an approved type. Two piece stamped lugs and solderless connectors will not be approved.
11. Splices of wire in the 600 Volt class shall be insulated with rubber tape, half lapped to a thickness of at least the thickness of the original insulation and then shall be wrapped with an equal number of turns of friction or plastic tape on the half lap. Splices in damp or outdoor locations shall be sealed in 3M Co. "Scotchcast" sealing packs.

BRANCH CIRCUITS

Provide all raceways, fittings, boxes, conductors, wiring devices and required accessories necessary for a complete and operating system of power, lighting, control, and signal systems as indicated on the drawings.

Particular attention shall be given to the color coding of branch conduit power and lighting conductors. Coloring shall be (without exception) as required by the NEC. Provide special color coded conductors (colors not used in other areas of building) to identify lighting and power switch legs.

OUTLET AND JUNCTION BOXES:

Boxes shall be of the size required by Code or larger, and unless otherwise noted, shall be pressed galvanized code gauge steel.

Lighting outlet boxes shall be minimum 4" square by 1-1/2" deep. Flush outlets shall be provided with a flush raised ring with tapped ears. Outlets shall be flush, unless otherwise noted or shown.

Outlet boxes for devices shall be 4" square by 1-1/2" minimum and shall be of proper size to accommodate the required devices. All wall mounted devices shall be flush mounted unless otherwise noted or shown, and boxes shall be fitted with the proper galvanized rings. Surface mounted boxes shall be of the threaded hub type and shall be provided with galvanized steel surface cover. Boxes and rings, in all cases, shall be deep enough to provide a minimum of 1/4" clearance between the device and the back of the box.

Junction boxes shall be minimum of 4" square by 1-1/2" deep. Flush boxes in ceiling shall have flush ring with tapped ears and a flat white steel blank plate. Flush boxes in wall unless otherwise noted, shall have single device cover with blank flush plate to match other flush plates in the room. Exposed junction boxes to meet requirements of ordinances for through wiring whether such boxes are shown or not. If necessary for conductor installation, provide additional pull boxes in concealed but accessible locations.

Where pull boxes larger than outlet boxes are required, galvanized code gauge sheet steel boxes may be used with covers attached by brass machine screw. Boxes exposed to weather shall be approved for the purpose and conduit entrances on the side or top shall be made by means of Square D Co. interchangeable hub with the gasket and adapter nut.

For outlets exposed to the weather, or where noted cast iron outlet boxes shall be used equivalent to Crouse-Hind's FS or FD series. Boxes shall have proper number and size hubs. Device plates, covers, adapters and boxes shall be as manufactured by Crouse-Hind Co.

WIRING DEVICES AND PLATES:

Provide in a true and plumb fashion, all wiring devices and plates necessary to complete the intended installation. All devices shall be equal to those indicated on the drawings, or as listed below:

- a. Light switches; Hubbell #CS120 Series
- b. 120 Volt, 15 and 20 amp wall mounted receptacles; Hubbell #CRF20 Series.

- c. All other devices shall be as indicated on the drawings and as required for the equipment to be connected.

Device coverplates: smooth plastic for all finished areas. Galvanized pressed steel coverplates for all other areas including equipment, storage, mechanical, etc. Exterior plates shall be weatherproof stainless steel. Coverplates in existing rooms shall match existing device plates. Where multiple plate types exist in an existing room, new cover plate types shall be as chosen by the Architect.

The color or finish of devices and coverplates for each area shall be as directed by the City Representative.

GROUNDING AND BONDING:

All grounding and bonding shall be performed in accordance with the current NEC, State of California Title 24, requirements of the Service Utility Co. building authorities and as shown. The grounding system shall be as specified herein, as required for the services shown and as required by local conditions.

All non-current carrying metallic parts of switchgear, transformers, panelboards, enclosures, conduits and other electrical equipment shall be effectively and permanently grounded.

Connect the main service or derived system neutral conductor, equipment ground bus, main cold water line or other effectively grounded structural member and the building grounding electrode with a copper conductor in rigid conduit. The building electrode shall be as specified herein.

Provide a building grounding electrode (UFER) system which consists of 20 feet minimum of code size copper conductor encased in the concrete foundation or footing of the structure. In the event the foundation is existing provide a building grounding electrode system which consists of at least one 5/8" x 96" long driven "Copperweld" ground rod.

All grounding and bonding conductors shall be copper and solder tinned before being made into terminals or clamps. Conductors shall be continuous without joints or splices.

Provide bond conductors at expansion joints, pullboxes, raceways, switchgear sections, etc. as required for complete and continuous ground path.

Clean and brighten contact surfaces prior to making terminations. Clamps and terminals shall be bronze pressure type throughout.

Test the complete installation for continuity and resistance to ground. Provide supplementary grounding as required to meet all requirements.

CONNECTION TO EQUIPMENT:

1. All electrical outlets for mechanical systems, apparatus, motors, equipment fixtures, wiring devices, and appliances where they are installed under this contract for the electrical work or not, which require electrical connections shall be fully connected in an approved manner to corresponding system outlet.
2. Where the work under this Section required connection to be made to equipment that is furnished and set in place under other sections of these specifications, obtain such roughing in dimensions from the manufacturer or supplier of each item of equipment and assume full responsibility for the neat and workmanlike installation of the connections thereto.
3. Provide type "SO" cords complete with strain relief devices and receptacle matching cord cap for equipment not furnished with cords but are assigned to a receptacle outlet on the drawings. The cords shall be of adequate length to connect and service the equipment and shall be rated to safely carry the load service.
4. Provide conduit hubs and adapters for outlets and equipment not furnished in this section as required to facilitate the specified conduit type connections.

LUMINARIES, LAMPS AND STANDARDS:

1. Provide all lighting fixtures with required lamps, reflectors, ballasts, housings, trims, bases, outlet boxes, accessories and mounting hardware to provide a complete and operable system.
2. Fixtures shall be individually supported from building structural elements and aligned in a manner which is approved by the City Representative.
3. Refer to Architectural reflected ceiling plans and elevations for exact location of all lighting fixtures. Fixture quantities shown on electrical drawings shall determine exact quantities required for this project.
4. Coordinate installation of all ceiling mounted light fixtures with the ceiling system contractor and supplier to determine the exact trim requirement

and finishes, mounting hardware, ceiling grid type and materials to be installed and extent of work to be provided by each.

5. All fluorescent fixture lenses shall be acrylic with a nominal minimum thickness of 0.125 inch unless specifically noted otherwise.
6. Fluorescent fixture ballasts shall be electronic, as manufactured by Advance, General Electric or Universal and shall be equipped with internal thermal protection. All ballasts shall be high power factor, Class "P" CBM certified, carry ETL and UL labels and have "A" sound ratings. Unless otherwise noted, all ballasts shall be designed for rapid start lamps. The one year guarantee for material and labor mentioned elsewhere in these specifications shall apply to the replacement of ballasts which, in the opinion of the Architect, develop excessive noise, heat or do not function properly. All fluorescent ballasts/luminaries shall be certified per section 2-5311 (b) California Administrative Code, Title 24, when these standards apply.
7. High intensity discharge ballasts shall be high power factor, CBM certified and UL listed for use in the specified fixtures. Recessed fixtures in interior finished spaces shall have encased and potted type ballasts. Replace, at no cost to the owner, ballasts which in the opinion of the Architect develop excessive noise.
8. Furnish and install all Fluorescent, Mercury Vapor, Metal Halide, High Pressure Sodium and Incandescent Lamps as indicated on the drawings, in accordance with the fixture manufacturer's specifications and as follows:
 - a. Lamps shall be of first quality, equal to General Electric, Westinghouse or Sylvania.
 - b. Fluorescent lamps shall be G.E. type SP35 unless noted otherwise.
 - c. Mercury vapor lamps shall be deluxe white.
 - d. Metal halide lamps shall be Sylvania Metal-Arc type "C".
 - e. High pressure sodium lamps shall be provided with clear arc tubes.
 - f. Recessed fixtures shall be provided with thermal protection by code.
 - g. Provide approved enclosures for fixtures located within fire rated ceiling.

MEASUREMENT AND PAYMENT

The contract **LUMP SUM** price paid for **ELECTRICAL** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for all construction required to build a fully functioning **ELECTRICAL** system and all

electrical fixtures and components. The work includes trenching and backfill, thrust blocks (if any), conduit and all other components illustrated on the plans, in these specifications and as required by responsible governing agencies.

The contractor shall submit a payment schedule of three (3) incremental payments at the following stages of completion. Payment does not constitute approval of construction:

1. Coordination with serving utility companies, Applications for service including service charges, Underground power utility service system and Meter/Main and Branch circuit panelboard and feeders.
2. Branch circuit wiring, connections and devices for all equipment, outlets, and lighting systems.
3. Lighting fixtures, lamps, ballasts, transformers, hangers, supports, standards, bases, and accessories including control equipment and temporary power during construction.

Measurement and payment for **ELECTRICAL** will be made as a percentage of completion for each of the three stages of construction listed at the contract lump sum price indicated in the Bid Schedule. The contractor and City Representative shall establish the percentage of completion levels with no level exceeding 50% of the Bid Schedule Lump Sum.

BID ITEM 9 - SITE DRAINAGE

SCOPE

This section covers construction of new site drainage system including pipe, cleanouts, inlets, fall surface underdrain, and subsurface infiltration assembly. It includes restroom, water play area, and any other area designated on the plans and in these specifications

SUBMITTALS

Manufacturer's cut sheets for all materials used in construction of drain system including pipe, fittings, inlets, cleanouts, drain chamber, gravel, and geotextile.
Jointing procedures for gasket pipe and fittings.
Jointing procedures for glue joint pipe and fittings.

QUALITY ASSURANCE

Provide video inspection of all drainage piping.

MATERIALS

1. Materials for sewer construction shall conform to the following requirements:
 - a. PVC pipe and fittings shall be rubber gasket bell and spigot conforming to the requirements of Section 207-17, "PVC Plastic Pipe," and 208-4, "Gaskets for Thermoplastic Pipe," of the SSPWC.
 - b. PVC perforated pipe and fittings shall be glue joint conforming to the requirements of ASTM D 2729 with two hole perforation at 120 degrees.
 - c. Precast concrete inlet bases, boxes tops and galvanized steel traffic grates shall square in plan CB-Flex by Oldcastle Precast, CB (1212, 1818, 2424) by Brooks Products, or equal as approved by the Owner's Representative.
 - d. Cleanout box shall be G03 provided cast iron lid as manufactured by Oldcastle Christy Concrete or equal as approved by the Owner's Representative. Cover shall be marked 'DRAIN'.
 - e. Stormwater chambers and end section shall be Chamber max by Contech Engineered Solutions or SC-740 by ADS StormTech.
 - f. Pipe bedding and shading shall be angular sand bedding having a sand equivalent equal or greater than 30.
 - g. Drain rock for subdrain shall conform to the requirements of Section 300-3.5.2, "Pervious Backfill," of the SSPWC.
 - h. Foundation and embedment stone for drainage chamber shall be size 3 or 4 in accordance with Table 2 of ASTM C33.
 - i. Geotextile for subdrain and subsurface chamber shall be Non-woven Class 1 in accordance with AASHTO M-288
 - j. Detectable Trench Warning Tape shall be 2 inch width x 5 mil AWWA color code green with storm drain legend conforming to NTSB-PSS-73-1.

METHODS

1. Site drain shall be constructed in accordance with requirements of the California Plumbing Code and these specifications.
2. Layout location of proposed drain piping and review with Owner's Representative five working days prior to starting construction.
3. Excavate and backfill trenching in accordance with requirements for Earthwork of these specifications and details included in the project plans and the SSPWC. Provide mechanical compaction of trench bedding and backfill materials.
4. Construct PVC site drains, cleanouts, subdrain, infiltration chamber, precast concrete boxes, and sewer piping in accordance with the project plans, California Plumbing Code and applicable provisions of Section 306-1, "Open Trench Operations," of the SSPWC.
5. Fabricate solvent-cement joints using a two-step process with primer and solvent cement in accordance with ASTM D2855. Apply primer to surface

of pipe and fitting is softened. Solvent cement shall be applied to all joint surfaces and joint shall be made while both socket and outside surfaces are wet with solvent cement. Joints shall be held undisturbed until initial set of cement is complete.

6. Upon completion of the work video inspect site drain lines.

MEASUREMENT AND PAYMENT

SITE DRAINAGE shall be measured and paid for at the contract unit price per **LUMP SUM** and lineal foot as follows:

1. Excavation and backfill for drain system construction shall be considered as incidental to and included in the various items of drain construction.
2. Precast concrete drainage inlets will be measured and paid for each of the various sizes including base, box, and grate.
3. Site drain cleanout including wye, riser, cleanout box and cover shall be measured and paid for each.
4. Site drain and laterals shall be measured and paid by the lineal foot for each of the various pipe sizes.
5. Perforated drain for fall surface shall be measured and paid by the lineal foot including pipe, pervious gravel, geotextile, buried cleanout fittings and wye connections to site drain laterals.
6. Subsurface chamber including gravel surround, geotextile, and riser pipe and cover shall be paid as a lump sum item.

The contract unit price shall represent full compensation for all **SITE DRAINAGE CONSTRUCTION** within the project limits (including all labor, equipment, and materials necessary to perform the work per the plans and specifications. This work includes, but is not necessarily limited to, all retaining wall, freestanding walls and benches constructed of concrete unit masonry work, including all reinforcing steel, all accessories, mortar, and grout as shown on the drawings and specified herein and any corrective work.

BID ITEM 10- RESTROOM

SECTION 01300 - SUBMITTALS, SUBSTITUTIONS & OPTION

PART 1 - GENERAL

SECTION INCLUDES

- A. Description of how on-site construction plans related to the installation of a prefabricated restroom. **The contractor must install a prefabricated restroom. There is not an option to build the restroom on site.**
- B. Procedures for submittal of the items described in the individual Sections of

- these Specifications.
- C. Procedures for substitutions of the items described in the individual Sections of these Specifications.

RELATED SECTIONS

- A. See the individual Sections where the items required to be submitted for review are described.
- B. Section 13000 Prefabricated Restroom Building as a Bid Alternate NO. 1.

CONSTRUCTION OF THE PREFABRICATED RESTROOM

- A. The contractor shall install a prefabricated design/build restroom that meets the intent of the plans that are included in the drawings and these specifications. The design/build subcontractor shall include all the facilities, features, general layout illustrated in the drawings and specified herein to the fullest extent possible. Deviations from the building plans shall be listed in writing as part of the bid submittal.

SUBMITTALS

- A. Format and Number of Copies of Submittals, Shop Drawings and Samples
 - 1. Submit 1 complete set of required submittal and shop Drawing documents.
 - a. Submittals and Shop Drawings shall be in digital .pdf file format.
 - 2. Submit 6 complete sets of required samples.
 - a. Samples shall be shipped with one copy of the complete submittal document.
- B. Submittals Labeling:
 - 1. Label each set and sample with the project name and date.
 - 2. Designate with arrows or circle each product and accessories to be provided.
- C. Submittals Processing
 - 1. General Contractor shall provide all copies of submittals to

Pacific Coast Land Design (PCLD)
3639 Harbor Blvd., Suite 107, Ventura, CA 93001
Office: 805-644-9697
Attn: Chris Roberts
Email: chris@pc-ld.com with cc. jon@pc-ld.com

- 2. PCLD shall forward submittals to the Architect for review and mark-up as needed.

Architect shall forward to sub-consultants for review and mark-up as needed.

3. PCLD shall return reviewed submittals to the general contractor.
 - a. Submittals in Compliance: PCLD shall return 1 digital set and 2 samples of reviewed submittals to the general contractor and 1 digital set and sample to the City of Greenfield Project Manager.
 - b. Submittals not in Compliance: PCLD shall return 1 digital set and a minimum of 2 Samples of reviewed submittals to the general contractor.
4. Resubmittals: 1 corrected digital set of submittals and 6 samples shall be resubmitted to PCLD, for processing as noted in steps 2 and 3 above.

1.4 SUBSTITUTIONS

- A. Reference to specific manufacturers and catalog numbers is intended to establish the required standard. Substitutions may be approved if submitted in accordance with the submittal requirements above within 45 days of the contract date, and if they are determined by the Architect to be equal to that specified in quality, performance, and appearance. If substitutions are accepted for use on this project, the requirements of the drawings and specifications shall not be relieved. Requests for substitutions must be accompanied by literature that completely describes the proposed substitution and clearly indicates all variances. Samples shall be furnished if requested.
- B. In addition to the test of "being equal", any approved substitution shall provide a substantial benefit to the Owner, as determined by the Architect. No approval of substitutions shall be provided before bid. As such, bid comparisons must be made based on specified equipment.

1.5 BID OPTION - RESTROOM BUILDING

- A. The Construction Drawings (bid drawings) and Specifications are provided to construct the restroom building in a conventional manner on site. The contractor has the option of building the restroom on site or purchasing and installing a prefabricated restroom. Specifications for each alternative are provided in this bid item:

See specification **Section 13000 Prefabricated Restroom Building**.

- B. The prefabricated restroom building design shall be similar to the contract drawings, including all components of the building design within the prefabricators context of construction materials & methods.
 1. Quality of materials shall equal or exceed the bid drawings and specs.
 2. Colors and styles of materials shall be per bid documents.
 3. Prefabricated building and its installation shall comply with all applicable State of California and local City of Greenfield codes.

4. Location and size of electrical meter and service panel shall be per bid drawings.
5. Point of entry for plumbing shall be per bid drawings.
6. Building orientation and location on site shall be per bid drawings.
7. All deviations from the bid drawings and specifications shall be reviewed by the Architect of Record as an "or equal" Substitute, as described in Specification Section 13000 Bid Alternate No. 1 Prefabricated Restroom Building.

END OF SECTION

STRUCTURAL SPECIFICATIONS – CAST IN PLACE CONCRETE

SCOPE

Section includes restroom cast-in-place and prefabricated concrete, footings, flatwork and retaining concrete. Including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the footings and slabs on grade and miscellaneous concrete.

MATERIALS

STEEL REINFORCEMENT

1. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
2. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60), plain-steel bars, cut true to length with ends square and free of burrs.
3. Bar Supports: Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
 - a. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
 - b. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
 - c. For zinc-coated reinforcement, use galvanized wire or dielectric-polymer-coated wire bar supports.

CONCRETE MATERIALS

1. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
2. Fly Ash: ASTM C 618, Class F or C.
3. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

4. Normal-Weight Aggregates: ASTM C 33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source.
5. Maximum Coarse-Aggregate Size: 3/4 inch) nominal.
6. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
7. Water: ASTM C 94/C 94M and potable.

CONCRETE MIXTURES

Prepare design mixtures for each type and strength of concrete per ACI 301

CONCRETE MIXTURES FOR BUILDING ELEMENTS

1. Minimum Compressive Strength: 3000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.50.
3. Slump Limit: 5 inches for concrete with verified slump of 2 to 4 inches before adding
high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch

CONCRETE MIXING

1. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and furnish batch ticket information.
2. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.

METHODS

FORMWORK

1. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
2. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
3. Construct forms tight enough to prevent loss of concrete mortar.

STEEL REINFORCEMENT

1. Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
2. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
3. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
4. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
5. Retain subparagraph below if welding is permitted or required.
6. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

JOINTS

1. Coordinate joint types, description, and location with Drawings. Joint types have been consolidated in this article for consistency rather than for strict sequence of installation.
2. Construct joints true to line with faces perpendicular to surface plane of concrete.
3. Revise criteria for locating construction joints in first paragraph below to suit Project.
4. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by City Representative. Joints shall be $\frac{3}{4}$ "
5. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
6. Retain first subparagraph below if keyed joints are used. Keyed joints are used in walls and floors and between walls and slabs or footings. ACI 302.1R recommends limiting keyed joints to lightly trafficked floors because keys may fail and lips may chip after concrete shrinks.
7. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
8. Locate joints for beams, slabs, joists, and girders in the middle third of spans
9. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
10. Insert spacing of construction joints in first subparagraph below if preferred.
11. Retain one of two subparagraphs below only if a bonding material is permitted.

12. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- A. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least [one-fourth of concrete thickness as follows:
1. Retain type of joint-forming method from two subparagraphs below or retain both subparagraphs as Contractor's option. Insert joint spacing if not indicated on Drawings.
 2. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 3. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- B. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

CONCRETE PLACEMENT

1. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and approved by the City Representative..
 2. Retain one of first two paragraphs below. ACI 301 permits water to be added to concrete mixture on-site to adjust slump, up to amount allowed in design mixture.
 3. Do not add water to concrete during delivery, at Project site, or during placement unless approved by City Representative.
- A. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to

- consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- B. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 2. Maintain reinforcement in position on chairs during concrete placement.
 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 4. Slope surfaces uniformly to drains where required.
 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleed water appears on the surface.

CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when directed by City Representative. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by City Representative.
- D. Repairing Unformed Surfaces: Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, pop-outs, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 2. After concrete has cured at least 14 days, correct high areas by grinding.
 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch (19-mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to City Representative's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to City Representative's approval.

FIELD QUALITY CONTROL

Inspections to be approved by City Representative: Steel reinforcement welding-climbing wall only.

Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed for the climbing wall concrete retaining wall as directed by the City representative and at the expense of the

City. Notification to the City of timing, in writing, is the responsibility of the contractor.

Test results shall be reported in writing to City Representative, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

STRUCTURAL SPECIFICATIONS – CONCRETE UNIT MASONRY

SCOPE

CMU(s): Concrete masonry unit(s).

Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

Masonry Standard: Comply with ACI 530.1/ASCE 6/TMS 602 unless modified by requirements in the Contract Documents.

DELIVERY, STORAGE, AND HANDLING

Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

PROJECT CONDITIONS

1. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.
2. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

MATERIALS

MORTAR AND GROUT MIXES

1. General: Do not use admixtures, unless otherwise indicated.
2. Do not use calcium chloride in mortar or grout.
3. Retain one or more of first three subparagraphs below to indicate acceptable mortar types.

4. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
5. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
6. Mortar for Unit Masonry: Comply with ASTM C 270, Specification. Provide the following types of mortar for applications stated unless another type is indicated.
7. Before selecting mortar types, see Appendix X1 in ASTM C 270 and BIA Technical Notes 8A and 8B for recommendations; coordinate with requirements for masonry compressive strengths.
8. For masonry below grade or in contact with earth, use Type S.
9. For reinforced masonry, use Type S

For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type N.

For interior non-load-bearing partitions, Type O may be used instead of Type N.

METHODS

EXAMINATION

Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.
Proceed with installation only after unsatisfactory conditions have been corrected.

INSTALLATION, GENERAL

1. Build chases and recesses to accommodate items specified in this and other Sections.
2. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.
3. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

TOLERANCES

1. Dimensions and Locations of Elements:
2. For dimensions in cross section or elevation do not vary by more than plus 1/2 inch or minus 1/4 inch
3. For location of elements in plan do not vary from that indicated by more than plus or minus 1/2 inch.
4. For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.
5. Lines and Levels:
6. For bed joints and top surfaces of bearing walls do not vary from level by more than 1/4 inch in 10 feet.
7. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet maximum.
8. For vertical lines and surfaces do not vary from plumb by more than 1/4 inch in 10 maximum.
9. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, maximum.
10. For lines and surfaces do not vary from straight by more than 1/4 inch in 10 maximum.
11. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet maximum.

LAYING MASONRY WALLS

1. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
2. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
3. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
4. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.
5. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.
6. Fill cores in hollow CMUs with grout **24 inches (600 mm)** under bearing plates,

At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Section 078446 "Fire-Resistive Joint Systems."

MORTAR BEDDING AND JOINTING

Lay hollow CMU's as follows:

1. With face shells fully bedded in mortar and head joint depth equal to bed joints.
2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
3. With webs fully bedded in mortar, including starting course on footings.

REINFORCED UNIT MASONRY INSTALLATION

Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height. Limit grout lifts to 60 inches unless masonry has cured for at least 4 hours.

PARGING

Parge exterior faces of below-grade masonry walls, where indicated, in 2 uniform coats to a total thickness of 3/4 inch. Dampen wall before applying first coat and scarify first coat to ensure full bond to subsequent coat.

Use a steel-trowel finish to produce a smooth, flat, dense surface with a maximum surface variation of 1/8 inch per foot. Form a wash at top of parging and a cove at bottom.

Damp-cure parging for at least 24 hours and protect parging until cured.

POINTING, AND CLEANING

Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.

In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.

MASONRY WASTE DISPOSAL

Excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

STRUCTURAL SPECIFICATIONS – ROUGH CARPENTRY

SCOPE

DEFINITIONS

- A. Exposed Framing: Framing not concealed by other construction.
- B. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.
- C. Timber: Lumber of 5 inches nominal or greater in least dimension.
- D. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
 - 2. NLGA: National Lumber Grades Authority.
 - 3. RIS: Redwood Inspection Service.
 - 4. SPIB: The Southern Pine Inspection Bureau.
 - 5. WCLIB: West Coast Lumber Inspection Bureau.
 - 6. WWPA: Western Wood Products Association.

DELIVERY, STORAGE, AND HANDLING

Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

MATERIALS

WOOD PRODUCTS

- 1. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
- 2. Factory mark each piece of lumber with grade stamp of grading agency.

3. In DOC PS 20, dressed sizes of green lumber are larger than dry lumber.
4. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
5. Provide dressed lumber, S4S, unless otherwise indicated.
6. Retain one of five options in "Maximum Moisture Content of Lumber" Paragraph below, or delete paragraph if green lumber is acceptable in all thicknesses. Verify availability of lumber with 15 percent maximum moisture content before retaining. Lumber more than 2 inches nominal (38 mm actual) in thickness is often shipped green. See Evaluations.
7. WOOD-PRESERVATIVE-TREATED LUMBER
8. Preservative Treatment by Pressure Process: AWWA U1; Use Category UC2.
9. See Evaluations for information about treatment chemicals.
10. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.
11. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
12. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
13. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

DIMENSION LUMBER FRAMING

Joists, Rafters, and Other Framing Not Listed Above: **No. 2** grade.
Species: Douglas fir-larch; WCLIB or WWPA.

MISCELLANEOUS LUMBER

General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Play equipment stock shall be cedar that is hand hewn by the manufacturer, with bark or without, as detailed in these plans and specifications. Lumber shall be selected by City Representative with photographs provided by the contractor. Selection shall include straight stock for posts and distorted stock for balance play facilities.

FASTENERS

1. General: Provide fasteners of size and type indicated on plans and herein that comply with requirements specified in this article for material and manufacture.
2. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
3. Where wood is exposed to human touch it shall be clear of splinter splinters. Exposed hardware shall be peened, smoothed, and free of metal edges, fragments or projections such that it is safe to the touch.
 - Nails, Brads, and Staples: ASTM F 1667.
 - NES NER-272 covers power-driven staples, nails, P-nails, and allied fasteners.
 - Power-Driven Fasteners: NES NER-272.
 - Wood Screws: ASME B18.6.1.
 - Lag Bolts: ASME B18.2.1
 - Bolts: Steel bolts complying with ASTM A 307, Grade A with ASTM A 563 hex nuts and, where indicated, flat washers.
 - Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry assemblies and equal to four times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
 - "Material" subparagraphs below are examples only. First subparagraph protects against corrosion in an indoor atmosphere; revise to suit other service conditions after verifying availability of thicker coatings.
 - Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
 - Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

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MISCELLANEOUS MATERIALS

1. Sill-Sealer Gaskets: Glass-fiber-resilient insulation, fabricated in strip form, for use as a sill sealer; 1-inch nominal thickness, compressible to 1/32 inch; selected from manufacturer's standard widths to suit width of sill members indicated. OR
2. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.

3. Retain "Flexible Flashing" Paragraph below if required as a separator between preservative-treated wood and metal decking.

CEILING JOIST AND RAFTER FRAMING INSTALLATION

1. Rafters: Notch to fit exterior wall plates and toe nail or use metal framing anchors. Double rafters to form headers and trimmers at openings in roof framing, if any, and support with metal hangers. Where rafters abut at ridge, place directly opposite each other and nail to ridge member or use metal ridge hangers.
2. Provide special framing as indicated for eaves, overhangs, and play structure log rafters. Provide City representative approved galvanized steel fastener at top intersection of of log rafters. Wrap with decorative rope as shown on plans.

MECHANICAL SPECIFICATIONS-GENERAL

SCOPE

DESCRIPTION OF WORK:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. Installers shall be liable for labor and materials necessary to repair and replace any damaged materials, or systems which occur as a result of work of the installing contractor.

DEFINITIONS:

- A. A "Main" is a water line supplying two or more single fixtures or batteries of fixtures, located in different rooms or buildings.
- B. A "Riser" is a vertical water line supplying two or more fixtures, or batteries of fixtures, located in different rooms.
- C. A "Battery" of fixtures is two or more fixtures served from same branch.
- D. "Concealed" where used in connection with insulation and painting of piping, ducts and accessories indoors, shall mean hidden from sight in trenches, chases, furred spaces, pipe shafts, or hung ceilings.

- E. "Exposed" where used in connection with insulation and painting of piping, ducts, and accessories indoors, shall mean not "concealed" as defined above.

- F. "Shop Drawings" refers to scaled drawings which graphically illustrate the location, size, manufacturer, interconnection and interferences, clearances, all other pertinent information involved of all items of equipment furnished by the submitting installer. This includes but is not limited to items fabricated by the installer as a portion of work of this section. The installer furnishes shop drawings to the owner's representative for review prior to beginning work of this section. Shop drawings are also utilized by the installer as fabrication drawings of any of the particular pieces of system the installer is supplying as work of this section.

QUALITY ASSURANCE:

- A. Reference to technical societies, trade organizations, governmental agencies is made in mechanical sections in accordance with the following abbreviations:

1.	CBC	California Building Code 2013
2.	CMC	California Mechanical Code 2013
3.	CPC	California Plumbing Code 2013
4.	CFC	California Fire Code 2013
5.	CEC	California Energy Code 2013
6.	AFI	Air Filter Institute
7.	AMCA	Air Moving and Conditioning Association
8.	ARI	Air Conditioning and Refrigeration Institute
9.	ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers
10.	ASME	American Society of Mechanical Engineers
11.	ASTM	American Society for Testing Materials
12.	AWSC	American Welding Society Code
13.	ANSI	American National Standards Institute
14.	FM	Factory Mutual
15.	FIA	Factory Insurance Association
16.	MSS	Manufacturers Standardization Society
17.	NAFM	National Association of Fan Manufacturers
18.	NEC	National Electrical Code (NFPA Pamphlet #70)
19.	NEMA	National Electrical Manufacturers' Association
20.	NFC	National Fire Codes

- 21. NFPA 13 National Fire Protection Association, Installation of Fire Sprinkler Systems, 2013
- 22. PDI Plumbing and Drainage Institute
- 23. SMACNA Sheet Metal and Air Conditioning Contractor's National Association
- 24. UL Underwriter's Laboratories, Inc.

- B. Requirements of Regulatory Agencies: Materials and installation shall comply with all applicable local, state, and national codes and ordinances. Obtain all permits and fees, required for execution of work included in this Division 15, Mechanical.
- C. Supervision: Installer shall give efficient supervision to the work, using his best skill and attention. He shall carefully study and compare all drawings, specifications and other instructions and shall at once report to the Tenant's representative any error, inconsistency or omission which he may discover. The installer shall have a designated supervisor satisfactory to the Architect's representative on the job at all times work is in progress.
- D. Manufacturer's Recommended Procedures: Whether indicated on the drawings or not all equipment shall be installed per the manufacturer's suggested installation instructions. In the event that the drawings conflict with the manufacturer's data, inform the Tenant's representative in writing of this fact prior to performing any work of the mechanical sections.
- E. Seismic Anchorage: All mechanical and electrical equipment shall be braced and anchored rigidly in conformance with Chapter 16 of the 2013 CBC. All ductwork and piping shall be provided with seismic restraints in accordance with the Tolco SEG-12, and pertinent sections of the CBC, CPC and the CMC.

SUBMITTALS:

- A. Submit under provisions of Project Architect.
- B. Equipment Catalog Information shall be submitted to the Owner's representative by the installer. Submit equipment information in bound format with dividers between each piece of equipment or type of material. Do not submit general information of generic type of materials without specifically indicating size, thickness, construction, and all other specific information necessary to determine if the material is equivalent to

the specified equipment or material. Equipment catalog cuts shall include, but not be limited, to items, which follow:

1. Schedule of pipe, materials, fittings, pipe hangers and hanger installation, valves with manufacturer and catalog number and piping elements such as pressure reducing valves
2. Pipe, and equipment insulation and insulation protection
3. Domestic plumbing system including all plumbing fixtures, hot water heaters, roof drains, etc.
4. Complete list of piping materials and pipe insulation for the project plumbing systems.
5. All mechanical equipment manufactured or fabricated by others but furnished and installed by the mechanical trades.
6. Automatic control systems, including but not limited to those, which control temperature, pressure and air flow.
7. Wiring diagrams, control panel board, motor starters and controls for electrically operated equipment furnished by mechanical trades.
8. All special products furnished by mechanical trades.

C. Installation Instructions:

1. Submit manufacturer's printed installation instructions for products specified to be installed in accordance with manufacturer's instructions. Submit under provisions of Architect's requirements..

RECORD DRAWINGS:

A. Record drawings shall be provided by the contractor at the end of the project. Record drawings shall be provided in an electronic format compatible with AutoCAD MEP 2014 software. Record drawings shall include the following:

1. Changes from Drawings in location of ductwork, piping, and equipment, drawn to scale.
2. Equipment layout drawings revised from shop drawings to reflect changed conditions.
3. All underground piping indicating plan location as well as inverts and slope

OPERATION AND MAINTENANCE MANUALS:

- A. Submit manuals as an assembly of the following information bound in durable binding.
1. Page indicating name, address, telephone number, and name of person to be contacted regarding building and equipment maintenance at office of Contractor.
 2. Sectionalize manual by dividers, with tab indexes indicating various sections.
 3. At front of each section, sheet indicating the name, address and telephone number of person to be contacted at office of major supplier.
 4. At each major subsection tab divider, index listing of portions and materials within subsection.
 5. Completion description of recommended operational procedures, maintenance, lubrication data, and spare replacement parts lists of equipment items. Include applicable catalog data, diagrams, cuts describing equipment and sources from which replacement parts can be obtained. Performance data (curves, charts, etc.) on all plumbing fixtures, hot water heaters, motor ratings, and electrical single lines and wiring diagrams for motor control centers and major power circuit breakers and disconnect centers.
 6. Items specified in paragraph on shop drawings and equipment data of this Section shall be included in manual.
 7. Include copies of tests data, computations, results, etc., specified in manuals.

JOB CONDITIONS:

- A. Inspection of Conditions: Examine related work and surfaces before starting work of this Section. Report to Owner's representative, in writing, conditions, which will prevent proper provision of this Work. Beginning Work of this Section without reporting unsuitable conditions to the Owner's representative constitutes acceptance of conditions by Contractor. Perform any required removal, repair, or replacement of this work caused by unsuitable conditions at no additional cost to the Owner.
- B. Safety: The Contractor shall maintain sufficient safeguards, such as railings, temporary walks, lights, guards, etc., against the occurrence of accidents, injuries, damage or hurt to any person or property and shall alone be

responsible for the same if such occur. The Contractor shall comply with applicable state and federal safety requirements.

- C. Protection of Work and Property: The Contractor shall continuously maintain adequate protection of all his work and materials from damage, destruction, or loss, and shall protect Owner's property from injury arising in connection with this Contract. He shall make good any such damage, destruction, claim against the Owner as a result of the Contractor's action during the time of construction.

COORDINATION:

- A. General: Coordinate field details with other trades to avoid construction delays and maintain required clearances.
- B. Equipment foundations and bases: Furnish certified details and drawings for approval before fabrication. Furnish all parts necessary for each foundation subbase and support.
- C. Roof, Wall and Floor Openings: Furnish shop drawings showing exact locations and sizes of openings through roofs, wall, and floors.
- D. Concrete will be furnished by other then mechanical installers consult Division 1 for information regarding concrete.
- E. Locations: Drawings show pipe and duct work diagrammatically. Adhere to drawings as closely as possible in laying out work. Vary run of piping, run and shape of ductwork and make offsets during progress of work as required to meet structural and other interferences as approved by Engineer. Run exposed piping and ductwork parallel to, or at right angles to, building walls. Keep horizontal lines as close to ceiling as possible. Conform to ceiling heights established on architectural drawings.
- F. Design Changes: Contractor shall pay costs of design and installation for changes resulting from substitution of products. Acceptance and review of substitute products by Owner's representative does not change this requirement. Refer to Division 1 regarding substitutions.
- G. Execution, Correlation and Intent of Documents: The drawings and the specifications are intended to be complementary so that work exhibited in the plans and not mentioned in the specifications, or vice versa, is to be

executed the same as if both mentioned in the specifications and exhibited in the plans to the true intent and meaning of the said plans and specifications when taken together.

- H. The locations and sizes of existing underground utilities are shown in an approximate way only and have not been independently verified by the design engineer or his representatives. The Contractor shall determine the exact location (and inverts where applicable) of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages, which might be occasioned by the installer's failure to exactly locate and preserve any and all underground utilities.

MANUFACTURER'S WARRANTY:

- A. Standard warranty of manufacturer shall apply for replacement of parts after expiration of other warranty periods stated in specifications if they are for shorter time than standard manufacturer's warranty.
- B. Manufacturer shall furnish and replace parts to Owner. Furnish Owner's representative printed manufacturer's warranties complete with material included and expiration dates upon completion of project.

METHODS

CUTTING:

- A. When required, it is subject to prior approval by Owner's representative.

TESTS:

- A. General: Test systems as specified in the individual sections of these specifications and as required by Code whichever is more stringent. Tests must be performed and systems approved, prior to painting, covering, insulating, furring, or concealing piping. Provide all test equipment, instrumentation and labor in conjunction with all tests. Prior to test, protect or remove all control devices, air vents, and other items, which are not designed to stand pressures used in test. Accomplish testing of piping in sections so as not to leave any pipe or joint untested. Obtain prior approval for test procedures. Engineer shall be notified forty-eight (48) hours in advance of tests. Any test conducted without notifying the Architect's representative shall be subject to retest at the discretion of Owner.

- B. Responsibility for Damages: Bear costs of repair and restoration for work of other trades damaged by tests or cutting done in connection with tests.

MISCELLANEOUS TESTING:

- A. Test and adjust regulators to specified reduced pressures. Test and set safety and relief valves to specified relief pressure. Test and adjust gages, thermometers and other instruments after installation to assure accurate operation. Test and adjust alarms for satisfactory operating conditions.

REPAIRS AND RETESTS:

- A. Make other adjustments, repairs and alterations required to meet specified test results. Correct defects disclosed by tests or inspection; replace defective parts. Use only new materials in replacing defective parts; in case of pipe, replace with same length as defective piece. Repeat tests after defects have been corrected and parts replaced, until pronounced satisfactory.

CLEANING OF SYSTEMS:

- A. Motors, pumps, boilers, fan coils and other items with factory finish: Remove dirt and other foreign materials leaving surfaces clean.
- B. Site: Remove from site packing cartons, scrap materials and other rubbish resulting from operations by mechanical trades.

PIPING SYSTEMS TEST:

- A. Drainage Systems: Test by filling entire waste and vent system with water. Extend one stack minimum 15 feet above the highest horizontal line to be tested and fill with water. System shall hold water for four (4) hours without discernible water loss from the riser.
- B. Water System: Test all water systems hydrostatically at a pressure of 150 psig, with no discernible drop at the end of (4) hours.

MECHANICAL SPECIFICATIONS – BASIC MATERIALS AND METHODS

GENERAL:

- 1.01 Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section. Section 15010, General Provisions for Mechanical Work applies to work of this section.

PRODUCTS:

2.01 EQUIPMENT GUARDS:

- A. Provide equipment with exposed moving parts with coupling guards, fan guards, or other enclosures conforming to the Industrial Safety Requirements, Title 8 of the California Administrative Code.

2.02 PIPE SLEEVES:

- A. Provide pipe sleeves for all mechanical piping. Size pipe sleeves to permit placing of pipe, pipe insulation and specified isolation material for pipes passing through walls or slabs.
- B. Sleeves for Pipes through Floor Slabs: Standard weight black steel pipe with top of sleeve projecting 1 inch above finished floor, except in stairways and areas where indicated on drawings that sleeves shall be flush with the floor.
- C. Sleeves for Pipes through Walls: Standard weight black steel pipe or 18-gage galvanized sheet metal with ends flush with wall surfaces.
- D. Seal pipes passing through fire resistive walls, floors and ceilings. Pipe penetrations thru rated walls and floors shall be firestopped per 2013 CBC, Sec. 714.3.1 and/or 714.4.1 and per details presented in piping and/or plumbing plans.

2.03 PROTECTIVE COATING FOR UNDERGROUND PIPING:

- A. General: Protect underground pipe as specified. Protect fittings similar to piping.
- B. Cast Iron Pipe, Copper Tubing and Pipe: Asphalt varnish or similar coating standard of pipe manufacturer.
- C. Steel Pipe: Factory wrapped with Conway Coating No. 25 factory

applied wrapping. Provide Manville VID-20, Scotch Wrap No. 51 tape or equal for making up job connections. Wrap tape with 50 percent overlap. Prime joints with Manville No. 22 primer, or equal, prior to installation of tape. "X-Tru-Coat," factory applied coating of polyvinyl chloride is also acceptable or equal.

- D. Wrapping of Field Joints and Fittings: Clean dirt, oil, foreign matter. Primer per manufacturer's recommendations. Wrap joints and fittings with "Scotch Wrap" No. 51, Manville VID-20 or equal, 2 wrappings, 10 mils each.
- E. Test all coating after installation but prior to backfill for holidays and pinholes with jump-spark detector. Repair imperfections as specified for field joints. Test shall be witnessed by IOR.

2.04 PIPE ISOLATORS AND COVERING PROTECTION:

- A. Pipe Isolators: Provide each hanger or clamp of uninsulated piping with an isolation unit to isolate sound, vibration and dissimilar metals. Isolator not required for waste, vent, propane, and downspout piping. Pipe isolator shall be used on all domestic hot water piping with break-in insulation at hanger.

2.05 ESCUTCHEONS, PLATES:

- A. Fit pipes passing through walls, floors and ceiling with wall plates of proper size to cover opening around pipes. Plates not required at floor slabs where sleeves project above floor. Floor plates and plates at tile walls shall be Frost, Series 7450-7460, 1-1/2" and smaller and Series 7530-7440, 2-1/2" and larger, chromium-plated. Other wall and ceiling plates, Series 7700 prime-coated. Equivalent plates by Beaton and Corvin are acceptable. Pipes passing through walls concealed above ceiling do not require plates.

2.06 PIPE, VALVES AND FITTINGS:

- A. General: Material shall be new domestic materials of standard manufacturer suitable for required use. Street ells, bushings, close nipples not permitted.
- B. Fire Protection Systems: This Section does not apply to fire protection systems.

- C. Reference Specifications: Pipe, valves and fittings conform to latest editions of specified standard specifications.
- D. Testing: Testing not required, but manufacturer shall certify materials conform to reference specifications, or specification number cast into or marked on, each piece.

2.07 SCHEDULE OF ABBREVIATIONS:

CW	Cold Water (Domestic)
DHW	Hot Water (Domestic)
DR	Drain lines (Condensate, Pressure-Temperature drains)
V	Vent
W	Sanitary Soil and Waste

2.08 PIPE SCHEDULE:

<u>Service</u>	<u>Size</u>	<u>Specification</u>
CW/DHW	All sizes	Seamless copper tubing, drawn temper, Type L, ASTM B88, except smaller than 1/2-inch and any below ground shall be Type K. Fittings shall be cast bronze or wrought copper with lead free solder ends.
DR	All sizes	Seamless copper tubing, drawn temper, Type L hard.
W, V	All sizes	Below grade to 5' outside the building, sched. 40 PVC DWV piping with solvent joints. Above slab, hubless cast iron service grade weight soil pipe, conforming to CISPI Standard 301-78. Joints shall be (2) band stainless steel connectors with screw-type tightening devices, Husky series 4000, manufactured with extra wide, heavy duty corrugated 304 stainless steel shield with heavy duty clamps tightened to 80 in-lbs or torque. Coupling gaskets shall be made of neoprene.

2.09 FITTINGS:

- A. Fittings Schedule.

<u>Service</u>	<u>Size</u>	<u>Specification</u>
CW/DHW	All sizes	Wrought copper solder-joint ANSI B16.22 or cast bronze ANSI B16.23. & Unions 2-inch and smaller wrought copper solder-joint ANSI B16.22. 2-1/2 inches and larger use flanges. Use dielectric types where required.

B. Valve Schedule

1. Bronze Ball Valves 3" and under.

- a. Valves shall be rated 150 psi SWP and 600 psi non-shock CWP and will have 2-pc. cast bronze bodies, TFE seats, standard port, separate packnut with adjustable stem packing, anti-blowout stems and chrome-plated brass/bronze ball. Valve ends shall have full depth ANSI threads or extended solder connections and be manufactured to comply with MSS-SP110 and shall be of lead-free construction.
- b. Where piping is insulated, ball valves shall be equipped with 2" extended handles of non-thermal conductive material. Also provide a protective sleeve that allows operation of the valve without breaking the vapor seal or disturbing the insulation. Memory stops, which are fully adjustable after insulation is applied, shall be included.
- c. Ball valves shall be Nibco T580-80-LF (threaded) or S-580-80-LF (solder).

2.10 FLASHINGS AND COUNTERFLASHINGS:

A. General: Furnish materials and coordinate installation for flashing and counterflashing roof penetrations for vents, pipes, drains and ducts.

B. Material:

1. Sheet Lead: 4 pound per square foot.
2. Sheet Metal: 24-gauge minimum ASTM A525, 1.25 ounce per square foot copper bearing zinc alloy.
3. Vent Stack Fitting: Josam 1830, J. R. Smith 1750 or equal.

C. Installation:

1. Pitch Dam: 24-gauge minimum, ring to exceed 12" beyond roof opening and 1-1/2 inch above finished roof deck or insulation.
2. Vents (2 inches and smaller): Lead flashing to top of vent. Cap with vent stack fitting.
3. Vents (over 2 inches): Lead counterflashing to turn down inside pipe approximately 1 inch. Lap over flashing approximately 2 inch.

2.11 ROOF PENETRATIONS:

- A. All roof penetrations shall be watertight by appropriate flashing and counterflashing.
1. Pipe penetrations through the roof structure shall be carefully coordinated with the drawings. Conform to methods and materials indicated on plans and required herein.

MECHANICAL SPECIFICATIONS - PIPE AND DUCT INSULATION

SCOPE:

1.01 RELATED WORK IN OTHER SECTIONS

- A. The General Conditions, Supplementary Conditions and Division 1-General Requirements, apply to this work as well as the following sections:
- | | |
|------------------------|---------------|
| B. General Provisions: | Section 15010 |
| C. Plumbing | Section 15400 |
| E. Painting | |

1.02 QUALITY ASSURANCE:

The Insulation Contractor shall possess a minimum of five years specialized experience in installation of insulation for plumbing and mechanical systems. He shall be engaged in installing insulation as a sole source of income. He shall employ qualified installers. He shall submit to the owner a list of comparable projects successfully completed within the last five years and a list of references. The insulation contractor shall have a current C-2 license.

1.03 PRINCIPAL WORK IN THIS SECTION:

Work in this section includes, but is not limited to the following general tasks:

- A. Coordinate the work of this Section with related trades.
- B. Verify applicable dimensions at the job site.
- C. Insulation of piping systems:
 - 1. Domestic hot water supply piping, insulated for entire length and 10' of CW supply piping to the water heater.
 - 2. Insulate exposed P-Traps & hot water supplies in restrooms per current handicapped access codes.

1.04 RELATED WORK IN OTHER SECTIONS:

- A. Painting
- B. Insulation other than specified herein

1.05 JOB CONDITIONS:

- A. Inspection of conditions: Examine related Work and surfaces before starting Work of this Section. Report to Architect, in writing, conditions, which will prevent proper execution of this Work. Beginning Work of this Section without reporting unsuitable conditions to Architect constitutes acceptance of conditions by Contractor. Perform any required removal, repair, or replacement of this Work caused by unsuitable conditions at no additional cost to the Owner.

MATERIALS

2.01 DOMESTIC HOT WATER

- A. Insulate with flexible elastomeric thermal insulation. Insulation shall have a flame spread rating of 25 or less and a smoke developed rating of 50 or less. Insulation shall be AP Armaflex by Armstrong Insulation Products or equal.
- B. Fabricate fitting covers with miter-cut tubular form.

- C. Butt joints and seams shall be sealed with Armstrong 520 adhesive, coating both surfaces with adhesive prior to joining.
- D. Insulation for domestic hot water piping shall have a 1" wall thickness.
- E. Where installed outdoors, the insulation shall be furnished with metal jacketing with a laminated moisture retarder. Metal jacketing shall be overlapped 2 to 3 inches and held in place with metal bands. Elbows and tees for metal-jacketed systems shall be finished with matching metal fitting covers. Other fittings in metal-jacketed systems shall be furnished with conventional weather-resistant insulating materials with painted aluminum finish.

2.02 P-TRAP & HW PIPING INSULATION IN HANDICAPPED ACCESS AREAS

- A. Insulate all exposed P-Traps and hot/cold water supplies in handicapped accessible restrooms using Truebro Lav Guard2 undersink piping covers.

2.03 INSULATION ACCESSORIES:

- A. Hangers, Mechanical: Benjamin - Foster "Clipfas" or equal.
- B. Wire, tie: 16-gage soft, annealed, black or galvanized.
- C. Tape, vapor barrier: Scotch, Childers or equal.
- D. Cement, insulating: Manville No. 375, 48 Insulation Quickset insulating cement, or equal.
- E. Adhesive, vapor barrier (lap): Benjamin - Foster No. 82-07 Childers Products CP-82 or equal, color: white, Fire Safety, wet - non-flammable, dry - F.S. 5.
- F. Adhesive, lagging. Benjamin - Foster No. 30-36 Childers Products CP-50 or equal; color: white, Fire Safety, wet - non-flammable, dry - F.S., MIL-A-4416A, Type I.
- G. Adhesive, Bonding: Benjamin - Foster No. 85-15 Childers products CP-88 or equal; color: amber; Fire Safety, wet - Flash Point 30 degrees F, dry - F.S. 10.

- H. Adhesive, Fire Retardant (used in sealing duct lining): Benjamin - Foster No. 85-20 Childers Products CP-89 or equal, color: Off- white; Fire safety, wet - non-flammable, dry F.S. 6.

METHODS

3.01 DOMESTIC HOT WATER PIPING

- A. Place pre-slit tubing over pipe. Peel release paper from adhesive surface and apply firm pressure along entire longitudinal joint. Secure butt ends using Armstrong 520 Adhesive.
- B. Fitting covers may be fabricated from miter-cut Self-Seal Armaflex 2000 tubing or PVC fitting covers with insulation inserts such as Zeston 300 series by Manville.

MECHANICAL SPECIFICATIONS - PLUMBING SYSTEMS

SCOPE

1.01 RELATED WORK IN OTHER SECTIONS:

- A. The General Conditions, Supplementary Conditions and Division 1-General Requirements, apply to this work as well as the following sections:
- B. General Provisions: Section 15010
- C. Pipe/Duct Insulation: Section 15180
- D. Painting
- E. Electrical: Division 16

1.02 QUALITY ASSURANCE:

- A. The Plumbing Contractor shall possess a minimum of five years specialized experience in installation of plumbing systems. He shall be engaged in plumbing systems installations as a sole source of income. He shall employ qualified installers. He shall submit to the owner a list of comparable projects successfully completed within the last five years and a list of references. The Plumbing Contractor shall have a current C-36 license.

1.03 PRINCIPAL WORK IN THIS SECTION:

Work in this section includes but is not limited to the following general tasks.

- A. Coordinate the work of this Section with related trades.
- B. Verify applicable dimensions at the jobsite, and become familiar with mechanical equipment, its function, condition and location.
- C. Comply with all codes, which are applicable to work done under this contract.
- D. Furnish and install domestic plumbing systems as indicated on the project construction documents.
- E. Coordinate with electrical drawings as required for control interfacing and equipment locations.

1.04 JOB CONDITIONS:

- A. Inspection of Conditions: Examine related Work surfaces before starting Work of this Section, report to Engineer, in writing, conditions, which will prevent proper execution of this Work. Beginning Work of this Section without reporting unsuitable conditions to Engineer constitutes acceptance of conditions by Contractor. Perform any required removal, repair or replacement of this Work caused by unsuitable conditions at no additional cost to the Owner.
- B. Coordination: Coordinate with Division 16 - Electrical for installation of electrical connections and coordinate installation of flashing roof installation as indicated on the Architectural plans.

MATERIALS

2.01 PLUMBING FIXTURES AND TRIM:

- A. GENERAL:
 - 1. Plumbing Fixtures Trim, cast brass set screw escutcheons for supplies and traps, exposed piping, traps, stops, etc., shall be chromium plated polished brass. Individual loosekey or screwdriver stops shall be provided for all supplies. All waste shall be separately trapped.

2. Fixtures of Vitreous China shall be white without discoloration, chips, or flaws and shall be free from glaze. Warped or otherwise imperfect fixtures will not be accepted.

B. Fixtures are delineated on the plans. Provide and install products as indicated on the plans, and according to all applicable codes.

2.02 PIPING, VALVES, FITTINGS AND SPECIALTIES:

A. Refer to Section 15050 - "Basic Materials and Methods" for detail requirements.

2.03 VALVE AND TRAP PRIMER ACCESS PANELS:

A. Type: 16 GA. stainless steel frame with 14 GA. stainless steel panel, concealed hinge with flush screwdriver operated steel cam latch. Finish shall be satin finish, stainless steel.

B. Provide access panels wherever valves or trap primers are concealed in walls or ceilings. Access panels shall be large enough to allow for service/replacement of the valve/trap primer but in no case shall they be less than 12"x12".

C. Access panels shall be Pottorff Model TMS or approved equal.

2.04 COPPER WATER HAMMER ARRESTERS:

A. Type: Piston operated, type "K" copper barrel, with brass threaded adapter. All joints of 95-5 lead free solder. Two "O" rings, temperature rated -40°F to 450°F. Normal operation pressure 35 to 250 PSIG, maximum surge or spike 1500 PSIG.

B. Size: Size to match pipe size where installed and according to PDI (Plumbing and Drainage Institute) standard WH 201.

C. Arrester shall be guaranteed for the life of the system.

D. Acceptable Manufacturers: PPP Incorporated, Sioux Chief "Hydra- Arrester.

2.05 CLEANOUTS:

A. Interiors:

1. Floors, resilient/tile Cast iron adjustable floor level assembly, round nickel bronze top, trap primer connection. Smith 4163, Zurn ZN-1400-7.
2. Floors, unfinished Cast iron, adjustable floor level assembly, round heavy-duty top. Smith - 4223, Zurn - Z-1420-25.
3. Walls, tile/plaster Cast iron cleanout tee with countersunk bronze plug and chrome plated finish access cover. Smith - 4553, Zurn ZN-1445-4.

B. Above-ground Caulk Ferrule Cast iron ferrule with countersunk bronze plug. Smith - 4420, Zurn - Z-1440.

2.06 PRESSURE AND TEMPERATURE RELIEF VALVES:

A. Type: ASME rated, bronze body.

B. Provide (1) temperature-pressure relief valve for each domestic hot water heater. Pipe full size discharge from relief valves to point of discharge outside building.

2.07 P-TRAP & HW/CW PIPING INSULATION IN HANDICAPPED ACCESS AREAS

A. Insulate all exposed P-Traps and hot/cold water supplies in handicapped accessible restrooms using Truebro Lav Guard2 undersink piping covers.

METHODS

3.01 GENERAL:

- A. Examine related work and conditions before starting work of this Section. Report in writing to the Architect conditions which will prevent proper execution of work. Beginning work of this Section without reporting unsuitable conditions to Architect constitutes acceptance of conditions by Contractor. Any required removal, repair or replacement of this work caused by unsuitable conditions shall be done at no additional cost to Owner.

3.02 PIPING SYSTEMS:

- A. General: Install supply connections to fixtures through wall as high under fixtures as possible and take off hot water lines from top of main.
- B. Unions: Install on each branch from horizontal main, adjacent to each screwed valve, on connections to equipment and where indicated. Installation of concealed unions, not approved.
- C. Shutoffs: Install ball valve in each branch line where branch takes off main, to isolate sections of piping and fixtures for repairs. Provide and install an access panel for all shut-off valves located in walls or above ceilings.
- D. Dielectric Insulators: Provide dielectric insulators between dissimilar metals, typical in all water systems.
- E. Cleanouts shall be indicated and in accordance with the Uniform Plumbing Code where applicable. Cleanouts shall be readily accessible.
- F. Valves: Whether indicated on the drawings or not, the Contractor shall provide valves in all water systems so located and arranged and with suitable operators to give complete regulation of all fixtures, apparatus and equipment. Valves for a similar service including those shown on the drawings, shall conform to the following:
 - 1. Valves shall be installed in all branch lines serving more than one piece of equipment or more than two fixtures.
 - 2. Shut-off Valves shall be installed in all risers and branch mains.
 - 3. Valves shall be installed on both sides of all apparatus and equipment.
 - 4. Unions shall be installed on the downstream side of all valves that are in runs or locations having solid connections on both ends of the valve.
 - 5. Valves shall be installed in the best grouping or arrangement and shall be located so as to provide accessibility for ease of operation

and future maintenance.

6. Pressure-Temperature relief valves shall be provided as shown on drawings or required by code.

3.03 VIBRATION ISOLATION:

- A. Pipes shall be isolated from the building. No piping shall be hung from ductwork or other piping. Do not use plumbers' tape to support piping in any area or situation.

3.04 PIPE LOCATION:

- A. The location of piping on the drawings is diagrammatic and shall be altered to conform to job conditions as necessary without additional cost to the Owner.
- B. The Contractor shall familiarize himself with pertinent plans prior to bidding work in this section taking careful consideration of Architectural features which will require special treatment. Run piping parallel to building walls and as required to be compatible with the structural configuration of the building. The Contractor shall be required to use good judgment where interferences occur.
- C. Run piping parallel to building walls and support as per these specifications and codes as applicable to this job. Do not hang piping with plumbers' tape.

3.05 DISINFECTION OF WATER SYSTEMS:

- A. General: Sterilize all domestic water systems. A firm specializing in water sterilization shall perform the work. Disinfection shall not start until after systems are complete, all connections made, and system is flushed out. Upon completion of disinfection, submit certificate to Architect for approval.
- B. Disinfectant Solution: Chlorine compound, gaseous or liquid chlorine or commercial "Clorox" or "Purex" or similar products may be used. Disinfectant solution shall consist of not less than one gallon of "Clorox" or equivalent to 200 gallons of water.
- C. Procedure: Provide line size gate valve and tee with 3/4-inch side outlet

valves. Close shutoff valve at main and open all water outlets slightly. Fill system by means of proportioning pump with disinfectant solution and inject disinfectant solution slowly and continuously at an even rate (not in slugs) until an orthotolidin test at each outlet indicates residual chlorine concentration of approximately 50 PPM minimum. Close all outlets including valve on solution injection connection and leave solution in pipes twenty- four (24) hours or until a residual of 10 PPM of chlorine is measured in the system (whichever occurs first). After tests comply with specification, flush system until orthotolidin tests at any outlet shows a residual of less than 0.5 PPM.

3.06 PIPE SUPPORTS:

- A. All piping shall be provided with seismic restraints in accordance with Tolco SEG-12 and details provided on the plumbing plans. Brace all natural gas piping, all piping located in boiler, mechanical equipment and refrigeration mechanical rooms that is 1-1/4" nominal diameter and larger and all piping 2 1/2" in diameter and larger.
- B. Seismic braces may be omitted:
 - 1. Piping suspended by individual hangers 12 in. or less in length, as measured from the top of the pipe to the bottom of the support where the hanger is attached, need not be braced. For pipes on a trapeze, the 12 in. exception is measured from the upper face of the horizontal structural member (or the bottom of the pipe).
- C. Transverse bracing will be at 40 ft. maximum except where a lesser spacing is indicated in the SEG-12 tables for bracing of pipes.
- D. Longitudinal bracing will be at 80 ft. maximum except where a lesser spacing is indicated in SEG-12 tables. For pipes where thermal expansion is a consideration, an anchor point may be used as the specified longitudinal brace provided it has a capacity equal to, or greater than, a longitudinal brace. The longitudinal braces and connections shall be capable of resisting the additional force induced by expansion and contraction.
- E. Provide joints capable of accommodating seismic displacements where pipes pass through building seismic or expansion joints or where rigidly supported pipes connect to equipment with vibration isolators. The joints

must allow motion in all directions.

- F. Branch piping may not be used to brace main lines.
- G. A rigid piping system shall not be braced to dissimilar parts of the building or to two dissimilar building systems that may respond differently during an earthquake.
- H. Cast iron pipe of all types and any other pipe joined with a shield and clamp assembly, where the top of the pipe is 12 in. or more from the supporting structure, will be braced on each side of a change in direction of 90° or more. Riser joints shall be braced or stabilized between floors.
- I. Copper tubing shall be supported at approximately 6-foot intervals for tubing 1 1/2 in and smaller. For piping 2 in and larger support shall be on minimum of 10-foot intervals.
- J. Screwed (I.P.S.) or flanged pipe shall be supported at 10 foot intervals.
- K. Vertical supporting members and supports: Arrange hangers to prevent transmission of vibration from piping to building structure and allow for expansion and contraction in hangers and supports. Uninsulated copper or brass pipe or tubing shall be isolated from ferrous hangers or supports as indicated herein. Furnish and install angle members to span steel joists or distribute load if additional members are required. This section does not apply to Fire Protection Systems.
- L. Hanger Spacing

Sched.	Pipe	Rod	Cast Iron Waste Pipe	Fuel Gas Schedule	Copper Tubing Hanger	PVC Pipe
	Size	Diameter	Std.	40	Spacing	40
	1/2"	1/4"		6'-0"	6'-0"	4'-0"
	3/4"	1/4"		8'-0"	6'-0"	4'-0"
	1"	1/4"		8'-0"	6'-0"	4'-0"
	1 1/4"	3/8"		10'-0"	6'-0"	5'-0"
	1 1/2"	3/8"	10'-0"	10'-0"	6'-0"	5'-0"
	2"	3/8"	10'-0"	10'-0"	10'-0"	6'-0"

2 1/2"	1/2"	10'-0"	10'-0"	10'-0"	6'-0"
3"	1/2"	10'-0"	10'-0"	10'-0"	7'-0"
4"	1/2"	10'-0"	10'-0"	10'-0"	8'-0"
6"	5/8"	10'-0"	10'-0"	10'-0"	9'-0"
8"	5/8"	10'-0"	10'-0"	10'-0"	10'-0"

* And at every joint.

- M. In all cases support piping at each change of direction, at ends of branches, at base and top of riser pipes and drops, and wherever necessary to prevent sag, bending, or vibration, in addition to above-listed hanger spacing.
- N. Hangers: See plans for details of hanger construction.
 - 1. Trapeze Hangers: Provide where several pipes can be installed parallel and at same level. Trapeze of steel Super Strut channel sized to support load and drilled for rod hanger at each end.
 - 2. Attach hanger rod to structure as detailed on the mechanical plans or as per direction of the Project Structural Engineer.
- O. Vertical Piping Supports.
 - 1. Support vertical pipe branches using Super strut channel and clamps as indicated on plans. Refer to manufacturer's rated maximum loading for each size pipe. Bolt clamp securely to pipe; rest clamp-end extension on building structure or steel members furnished under this section, spanning floor opening, or as indicated. Provide and install on all copper piping a piping insulator between the pipe and the super strut clamp.
- P. Hanger Inserts
 - 1. Provide and install at all non-ferrous to ferrous junctions (not required for PVC piping) which occur as a result of pipe hanging. The insert shall isolate contact between dissimilar metals to prevent galvanic reactions.

SECTION 08100 STANDARD HOLLOW METAL DOORS AND FRAMES

PART 1: GENERAL

WORK INCLUDED

- A. Furnish only standard hollow metal doors and frames as specified and shown on plans and schedules.
- B. Related Sections
 - 1. Section 08700 — Finish Hardware
 - 2. Section 09900 — Painting

STANDARDS REFERENCES

- A. SDI standards
 - 1. SDI-106-1999 *Recommended Standard Door Type Nomenclature*
 - 2. SDI-108-2010 *Recommended Selection and Usage Guide for Standard Steel Doors*
 - 3. SDI-111-2009 *Recommended Details for Standard Steel Doors, Frames, Accessories and Related Components.*
 - 4. SDI-112-2008 *Zinc-Coated (Galvanized/ Galvannealed) Standard Steel Doors and Frames*
 - 5. SDI-117-2009 *Manufacturing Tolerances for Standard Steel Doors and Frames*
 - 6. SDI-124-2011 *Maintenance of Standard Steel Doors and Frames*
- B. ANSI standards
 - 1. ANSI/SDI A250.3-2007 (R2011) *Test Procedure and Acceptance Criteria for Factory Applied Finish Coatings for Steel Doors and Frames*
 - 2. ANSI/SDI A250.4-2011 *Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frame Anchors and Hardware Reinforcings*
 - 3. ANSI/SDI A250.6-2003 (R2009) *Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames*
 - 4. ANSI/SDI A250.7-1997 (R2002) *Nomenclature for Standard Steel Doors and Steel Frames*
 - 5. ANSI/SDI A250.10-1998 (R2011) *Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames*
 - 6. ANSI/SDI A250.11-2012 *Recommended Erection Instructions for Steel Frames (Formerly SDI-105)*
 - 7. ANSI/BHMA A156.115-2006 *American National Standard for Hardware Preparations in Steel Doors and Steel Frames*
- C. ASTM standards
 - 1. ASTM A1008-2012 *Standard Specification for Steel Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability*

2. ASTM A568-2011 *Standard Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for*
3. ASTM A1011-2012 *Standard Specification for Steel Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability*
4. ASTM A653-2011 *Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process*
5. ASTM A879-06 *Standard Specification for Steel Sheet, Zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface*
6. ASTM A924-2010 *Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process*

QUALITY ASSURANCE

- A. Manufacturer shall meet or exceed all standards as noted in Section 2.01 references.
- B. Fire rated assemblies shall be manufactured in accordance with Underwriters Laboratories, Intertek Testing Services, and Factory Mutual established procedures and shall bear the appropriate labels for each application.
- C. No product shall be manufactured prior to receipt of approved hardware schedule and templates.

SUBMITTALS

- A. Shop drawings, if required, shall show all openings in the door schedule and/or the drawings.
- B. When required, provide details of door design, door construction details and methods of assembling sections, hardware locations, anchorage and fastening methods, door frame types and details, and finish requirements.

DELIVERY, MARKING AND STORAGE

- A. Where specified, all products shall be marked with architect's opening number on all doors, frames, misc. parts and cartons.
- B. All materials upon receipt shall be inspected for damage, and the shipper and supplier notified if damage is found.
- C. All doors and frames shall be stored vertically under cover. The units shall be placed on at least 4" (102 mm) high wood sills or in a manner that will prevent rust or damage. The use of non-vented plastic or canvas shelters that can create a humidity chamber shall be avoided.

D. A (6.3 mm) space between the doors shall be provided to promote air circulation.

If the wrapper on the door becomes wet, it must be removed immediately.

WARRANTY

A. Provide manufacturer's premium warranty.

PART 2: PRODUCT

MATERIALS

A. All steels used to manufacture doors, frames, anchors, and accessories shall meet at least one or more of the following requirements:

1. Hot dipped zinc coated steel shall be of the alloyed type and comply with ASTM designations A924, *Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process* and A653, *Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process*.

FRAMES

A. Interior frames

1. NONE

B. Exterior frames

1. Level 4 for door model 1 0.067" (1.7mm) minimum 14 gage steel, G90, prime coated.

C. Frames shall have 4" head and 2" jamb face dimensions and be full profile welded type. D. Provide frames with a minimum of three CMU mas

onry anchors per jamb suitable for the adjoining wall construction. Provide Tee anchors of not less than 0.042" (1.0 mm) in thickness. Frames to be grouted with 3000 psi masonry grout mix.

E. Base anchors shall be provided with minimum thickness of 0.042" (1.0mm).

F. All frames shall be fully prepared for all mortise template hardware and reinforced only for surface mounted hardware. Drilling and/or tapping shall be completed by others.

G. Minimum hardware reinforcing gages shall comply with Table 4 of ANSI/SDI A250.8, Specifications for Standard Steel Doors and Frames (SDI-100).

DOORS shall meet all of the following requirements:

A. Exterior Flush Doors Level 4 Model 1 – 0.067" (1.7 mm) minimum thickness
1 3/4" 14-gage face material, G90 galvanized steel, 18-gage stiffeners spot-welded 6" on center with insulation.
Continuously welded vertical beveled edges. (seamless).

B. Exterior Flush louver Doors Level 4 Model 1 – 0.067" (1.7mm) minimum thickness
1 3/4" 14-gage face material, G90 galvanized steel, 18-gage stiffeners spot-welded
6" on center with insulation. Continuously welded vertical beveled edges. (seamless). Louver to be 24" wide x 12" high centered and 12" above finished floor.

C. End closure: The top and bottom of the doors shall be closed with flush channels

The channels shall have a minimum material thickness of 14 gage.

FINISHING

- A. Prime finish: Doors and frames shall be thoroughly cleaned, and chemically treated to insure maximum paint adhesion. All surfaces of the door and frame exposed to view shall receive a factory applied coat of rust inhibiting primer, either air-dried or baked-on. The finish shall meet the requirements for acceptance stated in ANSI/SDI A250.10 Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.

DESIGN CLEARANCES

- A. The clearance between the door and frame head and jambs shall be 1/8" (3.2 mm) in the case of both single swing and pairs of doors.
- B. The clearance between the meeting edges of pairs of doors shall be 1/8" (3.2 mm) to 1/4" (6.3 mm), for fire rated doors 1/8" (3.2 mm) \pm 1/16" (1.6 mm).
- C. The clearance at the bottom shall be 3/4" (19.1 mm).
- D. The clearance between the face of the door and door stop shall be 1/16" (1.6 mm).
- E. All clearances shall be, unless otherwise specified, subject to a tolerance of \pm 1/32" (0.8 mm).

PART 3: EXECUTION

INSTALLATION

- A. Frames shall be installed plumb, level, rigid and in true alignment as recommended in ANSI/SDI A250.11, Recommended Erection Instructions for Steel Frames. All frames other than slip-on types shall be fastened to the adjacent structure so as to retain their position and stability.
- B. Where grouting is required in masonry installations, frames shall be braced or fastened in such a way that will prevent the pressure of the grout from deforming the frame members. Grout shall be mixed to provide a 4" (102mm) maximum slump consistency, hand troweled into place. Grout mixed to a thin "pump-able" consistency shall not be used.
- C. Doors shall be installed and fastened to maintain alignment with frames to achieve maximum operational effectiveness and appearance. Doors shall be adjusted to maintain perimeter clearances as specified in Section 2.05. Shimming shall be performed by the installer as needed to assure the proper clearances are achieved.
- D. Installation of hardware items shall be in accordance with the hardware manufacturer's recommendations and templates. ANSI/SDI A250.6, Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames shall be consulted for other pertinent information.

PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 087100 - DOOR HARDWARE

GENERAL

SECTION INCLUDES

- A. Hinges
- B. Deadbolts
- C. Door closers
- D. Stops.
- E. Pulls and Pull & Kick Plates.
- F. Exterior Weather stripping.

RELATED SECTIONS

- A. Section 08 11 00 - Metal Doors and Frames.

REFERENCES

- A. ANSI A117.1 - Accessible and Useable Buildings and Facilities.
- B. ANSI A156.1
- C. ANSI A156.26
- D. BHMA - Builder Hardware Manufacturers Association
- E. Underwriters Laboratories (UL). - Fire Resistance Directory.
 - 1. UL10C
 - 2. UL 634

SUBMITTALS

- A. Submit under provisions of Section 01300.

Product Data: Manufacturer's data sheets on each product to be used, including:

- 1. Preparation instructions and recommendations.
- 2. Storage and handling requirements and recommendations.
- 3. Installation methods.

QUALITY ASSURANCE

- A. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five (3) years demonstrated experience in installing products of the same type and scope as specified.

DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.

PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

WARRANTY

- A. At project closeout, provide to the Owner or Owner's Representative an executed copy of the manufacturer's Limited Warranty against Manufacturing Defects.
 - 1. Duration: Ten (10) years.

PART 2 PRODUCTS

MANUFACTURERS

- A. Acceptable Manufacturer: See hardware sets
- B. Substitutions: permitted. Upon Architect review.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01300 – Submittals and Substitutions.

HARDWARE

- A. Continuous Geared Hinges:
 - 1. Conformance: ANSI A156.26 Grade 1
 - 2. Material: 6063-T6 Aluminum.
 - 3. Hinge Duty: Heavy Duty. Secured with vandal proof screws
 - 4. Fire Rating: 90 Minutes,
 - 5. Model: 112HD - Full Mortise Aluminum Geared Continuous Hinge.
- B. Pulls:
 - 1. Model: 8103 Door Pull -1 inch (25mm) Round.
 - 2. Projection: 2 1/2 (64mm). Secure pulls mounted back to back.
 - 3. Clearance: 1 1/2 inches (38mm).
 - 4. Size and Finish: 8", US32D-AM.
- C. Mortise Lock:
 - 1. Model: L464 Small Mortise Deadlock
L-Series Extra Heavy Duty Commercial Locks: Grade 1, heavy-duty traffic lockset certified to ANSI A156.13-2005, series 1000. Exceeds

1,000,000 cycles.

- D. Door Closer:
 - 1. 4040XP Series Closer: Tested and certified under ANSI A156.4, Grade 1. Meets ADA requirements.
 - 2. Mounting: Non Handed mount as noted in the Hardware Schedule.
 - 3. Cylinder: Cast iron construction, adjustable sizing.
 - 4. Arm: Forged steel construction. Maximum opening range from 140 to 180 degrees dependent on arm function noted in the Hardware Schedule.
 - 5. Door Closer Arm: Forged steel construction.
 - 6. Secure with vandal proof screws

- E. Protection Trim:
 - 1. Size to be 10" x 34" material Stainless Steel and Finish: stain stainless steel per hardware schedule.
 - 2. Model: 8400 Protection Plate mounted on both sides of the door.

- F. Floor Stops:
 - 1. Model: FS18L Floor Stop. Black, flame resistant material for vandalism prone areas.

- G. Weatherstripping: 320S DOOR BOTTOM
 - 1. Seals Model: 700ES aluminum
 - 2. Door Bottoms Model: 320S aluminum

EXECUTION

EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

PREPARATION

- A. Clean surfaces thoroughly prior to installation.

- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

INSTALLATION

- A. Install in accordance with manufacturer's instructions.

PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

HARDWARE SETS

HARDWARE SET 1 (Restroom Entry)

1 EA	CONTINUOUS HINGES	(IVE) 112HD-83"	.ALUM.
1 EA	SMALL DEADLOCK	(SCH) L464	US26D
1 EA	MORTISE CYLINDER	(SCH) AS REQUIRED	US26D
2 EA	DOOR PULLS	(IVE) 8103HD-1" (mounted B to B)	US26D -AM
1 EA	DOOR CLOSER	(LCN) 4040XP (mount on push side of door)	689
1 EA	FLOOR STOP	(IVE) FS18L	BLACK
2 EA	KICK PLATES	(IVE) 8400 B3E 10" X 34"	US32D

HARDWARE SET 2 (STORAGE AND UTILITY)

1	EA	CONTINUOUS HINGES	(IVE) 112HD-83"	ALUM.
1	EA	SMALL DEADLOCK	(SCH) L464	US26D
1	EA	MORTISE CYLINDER	(SCH) AS REQUIRED	US26D
2	EA	DOOR PULLS	(IVE) 8103HD-1" (mounted B to B)	US26D-AM
1	EA	FLOOR STOP	(IVE) FS18L	BLACK
1	EA	AUTO. DOOR BOTTOM	(NGP) 320S-36"	ALUM.

MANUFACTURERS

FINISHES

IVES- HINGES, PULLS, STOPS, KICK & PULL PLATES

ALUM.

CLEAR ALUMINUM

LCN- CLOSERS

BLACK

BLACK RUBBER

NGP- DOOR BOTTOMS

US26D

STAIN
CHROME
STAINLESS
STEEL

US32D

SCH- SMALL DEADLOCK, CYLINDER

END OF SECTION

SECTION 07462 - FIBER-CEMENT SIDING & TRIM

PART 2 - GENERAL

SECTION INCLUDES

Fiber cement vertical siding panels, trim, and accessories; James Hardie HZ10 Engineered for Climate Siding.

RELATED SECTIONS

Section 06100 - Rough Carpentry: Wood framing and bracing.

Section 06100 - Rough Carpentry: Sheathing.

REFERENCES

ASTM D3359 - Standard Test Method for Measuring Adhesion by Tape Test, Tool and Tape.

ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C.

SUBMITTALS

Submit under provisions of Section 01300.

Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

Shop Drawings: Provide detailed drawings of atypical non-standard applications of cementitious siding materials which are outside the scope of the standard details and specifications provided by the manufacturer.

Verification Samples: For each finish product specified, provide samples, minimum size 4 by 6 inches (100 by 150 mm), representing actual product, color, and patterns.

QUALITY ASSURANCE

Installer Qualifications: Minimum of 2 years experience with installation of similar products.

Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.

4. Finish ceiling area within one restroom, as designated by

- Architect.
5. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
 6. Refinish mock-up area as required to produce acceptable work.

DELIVERY, STORAGE, AND HANDLING

Store products in manufacturer's unopened packaging until ready for installation.

Store siding on edge or lay flat on a smooth level surface. Protect edges and corners from chipping. Store sheets under cover and keep dry prior to installing.

Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

PROJECT CONDITIONS

- B. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

WARRANTY

Product Warranty: Limited, non-pro-rated product warranty.

1. HardiPanel HZ10 vertical siding for 30 years.
2. HardieSoffit HZ10 panels for 30 years.
3. HardieShingle HZ10 siding for 30 years.

PART 3 - PRODUCTS

MANUFACTURERS

1.1 Acceptable Manufacturer: James Hardie Building Products, Inc., which is located at: 26300 La Alameda Suite 400 ; Mission Viejo, CA 92691; Toll Free Tel: 866-274-3464; Tel: 949-367-4980; Fax: 949-367-4981; Email: [request info \(info@jameshardie.com\)](mailto:info@jameshardie.com); Web: www.jameshardiecommercial.com

1.2 Requests for approval of equal substitutions will be considered in accordance with provisions of Section 01300.

SIDING

HardiPanel HZ10 vertical siding HZ10 panels requirement for Materials:

1. Fiber-cement Siding - complies with ASTM C 1186 Type A Grade II.
2. Fiber-cement Siding - complies with ASTM E 136 as a

- noncombustible material.
- 3. Fiber-cement Siding - complies with ASTM E 84 Flame Spread Index = 0, Smoke Developed Index = 5.
- 4. CAL-FIRE, Fire Engineering Division Building Materials Listing - Wildland Urban Interface (WUI) Listed Product.
- 5. National Evaluation Report No. NER 405 (BOCA, ICBO, SBCCI, IBC, IRC).
- 6. US Department of Housing and Urban Development Materials Release 1263d
- 7. California DSA PA-019.

Vertical Siding: HardiePanel HZ10 siding as manufactured by James Hardie Building Products, Inc.

- 8. Type: Stucco Vertical siding panel 4 feet by 10 feet (1219 mm by 3048 mm).
- 9. Type: Sierra 8 inches (203 mm) Vertical siding panel 4 feet by 10 feet (1219 mm by 3048 mm). Embossed lines installed horizontally.

Trim:

- 10. HardieTrim HZ10 boards as manufactured by James Hardie Building Products, Inc.
 - A. Product: 4/4 Boards, 3-1/2 inch (89 mm) width.
 - B. Product: 4/4 Boards, 5-1/2 inch (140 mm) width.
 - C. Product: 5/4 Boards, 3-1/2 inch (89 mm) width.
 - D. Product: 5/4 Boards, 5-1/2 inch (140 mm) width.
 - E. Texture: Rustic.
 - F. Length: 12 feet (3658 mm).
 - G. 4/4 Thickness: 3/4 inch (19 mm).
 - H. 5/4 Thickness: 1 inch (24 mm).

FASTENERS

Wood Framing Fasteners:

- 11. Wood Framing: 8d common corrosion resistant nails.

Masonry Walls:

- 12. Masonry Walls: Aerico Stud Nail, ET&F ASM No.-144-125, 0.14 inch (3.6 mm) shank by 0.30 inch (7.6 mm) head by 2 inches (51 mm) long corrosion resistant nails.

FINISHES

Factory Primer: Provide factory applied universal primer.

13. Primer: Factory primed by James Hardie.
14. 2nd coat of primer: Refer to Section 099113.
15. Topcoat: Refer to Section 099113 and Exterior Finish Schedule.

PART 4 - EXECUTION

EXAMINATION

Do not begin installation until substrates have been properly prepared. If framing preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

Nominal 2 inch by 4 inch (51 mm by 102 mm) wood framing selected for minimal shrinkage and complying with local building codes, including the use of water-resistive barriers or vapor barriers is required. Minimum 1-1/2 inches (38 mm) face and straight, true, of uniform dimensions and properly aligned.

1. Install water-resistive barriers and claddings to dry surfaces.
2. Repair any punctures or tears in the water-resistive barrier prior to the installation of the siding.
3. Protect siding from other trades.

PREPARATION

1. Clean surfaces thoroughly prior to installation.
2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
3. Install Tyvar Building Wrap water-resistive barrier as required in accordance with local building code requirements, and as indicated on Drawings.
4. The water-resistive barrier must be appropriately installed with penetration and junction flashing in accordance with local building code requirements, as indicated on the drawings.
5. Use Seam Tape at joint and laps compatible with Tyvar Building Wrap.
6. Install Protecto Wrap 40 adhesive backed bituminous flashing, at perimeter of grill openings.

INSTALLATION - HARDIEPANEL HZ10 VERTICAL SIDING

Install materials in strict accordance with manufacturer's installation instructions.

Block framing between studs where HardiePanel siding horizontal

joints occur.

Install maximum lengths to minimize joints.

4. Install panels full length of run at each vertical wall condition, up to 10'.
5. At Ceiling conditions, install full size panels to minimize joints. At joints, install highest quality paintable sealant tooled level and smooth and sprinkled with sand to match ceiling panel finish to provide monolithic look in ceiling finish.

Install metal Z flashing and provide a 1/4 inch (6 mm) gap at horizontal panel joints.

Place fasteners no closer than 3/8 inch (9.5 mm) from panel edges and 2 inches (51 mm) from panel corners.

Allow minimum vertical clearance between the edge of siding and any other material in strict accordance with the manufacturer's installation instructions.

Maintain clearance between siding and adjacent finished grade.

Specific framing and fastener requirements refer to Tables 2 and 3 in National Evaluation Service Report No. NER-405.

Field prime all cut edges in accordance with manufacturer's printed instructions.

6. Touch-up paint all nicks, scrapes, and nail heads prior to Substantial Completion.

INSTALLATION - HARDIETRIM HZ10 BOARDS

Install materials in strict accordance with manufacturer's installation instructions. Install flashing around all wall openings.

Install single board full length of run at each condition up to 12' length. At joints in runs >12', miter joint per manufacturer's instructions, tight and fully aligned.

Fasten through trim into structural framing or code complying sheathing. Fasteners must penetrate minimum 3/4 inch (19 mm) or full thickness of sheathing. Additional fasteners may be required to ensure adequate security.

Place fasteners no closer than 3/4 inch (19 mm) and no further than 2 inches (51 mm) from side edge of trim board and no closer than 1 inch (25 mm) from end. Fasten maximum 16 inches (406 mm) on center.

Maintain clearance between trim and adjacent finished grade.

Trim inside corner with a single board trim both side of corner.

Outside Corner Board Attach Trim on both sides of corner with 16 gage corrosion resistant finish nail 1/2 inch (13 mm) from edge spaced 16 inches (406 mm) apart, weather cut each end spaced minimum 12 inches (305 mm) apart.

Allow 1/8 inch gap between trim and siding.

Seal gap with high quality, paint-able caulk.

Shim frieze board as required to align with corner trim.

Fasten through overlapping boards. Do not nail between lap joints.

Overlay siding with single board of outside corner board then align second corner board to outside edge of first corner board. Do not fasten HardieTrim boards to HardieTrim boards.

Shim frieze board as required to align with corner trim.

Install HardieTrim Fascia boards to rafter tails or to sub fascia

FINISHING

Finish factory primed siding and trim with a minimum of one coat of primer plus and two finish coats high quality 100 percent acrylic exterior grade paint, per Section 099113, within 180 days of installation. Follow paint manufacturer's written product recommendation and written application instructions.

PROTECTION

Protect installed products until completion of project.

Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 08625 – TUBULAR DAYLIGHTING DEVICE

GENERAL

SECTION INCLUDES

- A. Tubular daylighting device.

B. Accessories.

RELATED SECTIONS

A. Section 073113 - Fiberglass-based asphalt shingles: Flashing of skylight base.

REFERENCES

- A. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- B. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2008a.
- C. ASTM A 463/A 463M - Standard Specification for Steel Sheet, Aluminum Coated, by the Hot Dip Process; 2006.
- D. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc Coated (Galvanized), by the Hot Dip Process; 2007.
- E. ASTM A792/A 792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
- F. ASTM E 283 - Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2004.
- G. ASTM E 308 - Standard Practice for Computing the Colors of Objects by Using the CIE System; 2006.
- H. ASTM E 330 - Structural Performance of Exterior Windows, Curtain Walls and Doors; 2002.
- I. ASTM D 635 - Test Method for Rate of Burning and/or Extent of Time of Burning of Self-Supporting Plastics in a Horizontal Position; 2006.
- J. ASTM D-1929 - Test Method for Ignition Properties of Plastics; 1996 (2001).
- K. CSA C22.2 No. 250.0 - Luminaires.
- L. ICC AC-16 - Acceptance Criteria for Plastic Skylights; 2008.

PERFORMANCE REQUIREMENTS

A. Completed tubular daylighting device assemblies shall be capable of meeting the following performance requirements:

Air Infiltration Test:

- A. Single and Dual Glazed Dome (M74 DS Type DP & DPP): Passes Air infiltration; maximum of 0.05 cfm/ft² (0.3 L/s/m²) when tested according to AAMA/WDMA/CSA 101/I.S.2/A440-11, ICC-ES AC-16, and ASTM E 283.
- B. Air infiltration will not exceed 0.30 cfm/sf aperture with a pressure delta of 1.57 psf across the tube when tested in accordance with ASTM E 283.
- C. Single and Dual Glazed Dome (M74 DS Type DP & DPP): meets or exceeds the air leakage performance levels with a maximum 0.4 cfm/ft² when tested in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 and ASTM E 283.
- D. Air exfiltration will not exceed 0.4 cfm/sf aperture with a

pressure delta of 1.57 psf across the tube when tested in accordance with ASTM E 283.

Water Resistance Test:

- A. No uncontrolled water leakage at 10.5 psf pressure differential with water rate of 5 gallons/hour/sf when tested in accordance with ASTM E 547.

Uniform Load Test:

All units tested with a safety factor of (3) for positive pressure and (2) for negative pressure, acting normal to plane of roof in accordance with ASTM E 330.

- E. No breakage, permanent damage to fasteners, hardware parts, or damage to make daylighting system inoperable or cause excessive permanent deflection of any section when tested at a Positive Load of 210 psf (10.05 kPa) or Negative Load of 160 psf (7.66 kPa) in accordance with ICC AC-16 Section A.

Fire Testing:

F. Fire Rated Roof Assemblies:

- 1. Roof Assemblies: When used with the Dome Edge Protection Band and mounted on curbs 4 inches high or greater, all domes shall meet the prescriptive fire rating requirements for Class A roof assemblies as described in the 2012 International Building Code.

- G. When used with the Dome Edge Protection Band, all domes meet fire rating requirements as described in the International Building Code.

- H. Self-Ignition Temperature - Greater than 650 degrees F per ASTM D-1929.

- I. Smoke Density: Rating no greater than 450 per ASTM Standard E 84 in way intended for use. Classification C.

- J. Rate of Burn and/or Extent: Maximum Burning Rate: 2.5 inches/min (62 mm/min) Classification CC-2 per ASTM D 635.

- K. Rate of Burn and/or Extent: Maximum Burn Extent: 1 inch (25 mm) Classification CC-1 per ASTM D 635.

SUBMITTALS

Submit under provisions of Section 01300.

- 7. Preparation instructions and recommendations.
- 8. Storage and handling requirements and recommendations.
- 9. Installation methods.

QUALITY ASSURANCE

Manufacturer Qualifications: Engaged in manufacture of tubular daylighting devices for minimum 15 years.

DELIVERY, STORAGE, AND HANDLING

Store products in manufacturer's unopened packaging until ready for installation.

Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

WARRANTY

- A. Daylighting Device: Manufacturer's standard warranty for 10 years.

PART 5 - PRODUCTS

MANUFACTURERS

- A. Acceptable Manufacturer: Solatube International, Inc., which is located at: Solatube International 2210 Oak Ridge Way; Vista, CA 92081-8341; Toll Free Tel: 888-765-2882; Tel: (760) 477-1120; Fax: (760) 597-4488; Email:[request info \(commsales@solatube.com\)](mailto:request info (commsales@solatube.com)); Web:www.solatube.com
- B. Requests for substitutions will be considered in accordance with provisions of Section 01300.

TUBULAR DAYLIGHTING DEVICES

- C. Tubular Daylighting Devices General: Transparent roof-mounted skylight dome and self-flashing curb, reflective tube, and ceiling level diffuser assembly, transferring sunlight to interior spaces; complying with ICC AC-16.
- D. Brighten Up Series: Solatube Model 290 DS: 14 Inch (350 mm) Daylighting System:
- 5.1 Roof Dome Assembly: Transparent, UV and impact resistant dome with flashing base supporting dome and top of tube.
- A. Outer Dome Glazing: Type DA, 0.125 inch (3.25 mm) minimum thickness impact resistant injection molded acrylic classified as CC2 material; UV inhibiting (100 percent UV C, 100 percent UV B and 98.5 percent UV A), impact modified acrylic blend.
- B. Raybender 3000: Variable prism optic molded into outer

- dome to capture low angle sunlight and limit high angle sunlight.
- C. LightTracker Reflector: Aluminum sheet, thickness 0.015 inch (0.4 mm) with Spectralight Infinity. Positioned in dome to capture low angle sunlight.
- 5.2 Flashing Base: One piece, seamless, leak-proof flashing functioning as base support for dome and top of tube.
- A. Base Material: Sheet steel, corrosion resistant, meeting ASTM A 653/A 653M or ASTM A 463/A 463M or ASTM A792/A 792M, 0.028 inch (0.7 mm) plus or minus .006 inch (.015 mm) thick.
 - B. Base Pitched: Pitched Type FP, 22.5 degrees slope from horizontal, 4 inches (102 mm) high.
 - C. Dome Edge Protection Band: Type PB, For fire rated roofs. Aluminized steel. Nominal thickness of 0.028 inches (0.7 mm).
- 5.3 Tube Ring: Attached to top of base section; 0.090 inch (2.3 mm) nominal thickness injection molded high impact acrylic; to prevent thermal bridging between base flashing and tubing and channel condensed moisture out of tubing.
- 5.4 Reflective Extension Tube: Aluminum sheet, thickness 0.015 inch (0.4 mm).
- A. Interior Finish: Spectralight Infinity with Cool Tube Technology combining ultra-high Visible Light reflectance with Ultra-low Infrared (IR) reflectance. Patented spectrally-selective optical surface yields specular reflectance greater than 99 percent for the Visible Light spectrum (400 nm to 760 nm) and less than 20% reflectance for Infrared (IR) wavelengths longer than 980nm, resulting in a spectrally-selective Total Solar Spectrum (400 nm to 2500 nm) less than 80.2 percent.
 - B. Color: a* and b* (defined by CIE L*a*b* color model) shall not exceed plus 2 or be less than minus 2 as determined in accordance to ASTM E 308.
 - C. Tube Diameter: Approximately 14 inches (356 mm).
- 5.5 Reflective 30 degree Adjustable tube: Aluminum sheet, thickness .015 inch (0.4 mm)
- A. Interior Finish: Spectralight Infinity with Cool Tube Technology combining ultra-high Visible Light reflectance with Ultra-low Infrared (IR) reflectance. Patented spectrally-selective optical surface yields specular reflectance greater than 99 percent for the Visible Light spectrum (400 nm to 760 nm) and less than 20% reflectance for Infrared (IR) wavelengths longer than 980nm, resulting in a spectrally-selective Total Solar Spectrum (400 nm to 2500

nm) less than 80.2 percent.

- 5.6 Ceiling Ring: Injection molded impact resistant acrylic. Nominal thickness is 0.110 inches (2.8 mm).
- 5.7 Dual Glazed Diffuser Assembly:
 - A. Lower glazing with integral injection molded acrylic Dress Ring classified as CC2 material. Nominal thickness is 0.110 inches (2.8 mm):
 - 1. Classic Vusion Diffuser: Molded acrylic plastic classified as CC2 material (nominal thickness 0.090 inches (2.29 mm) with injection molded acrylic Diffuser Trim Ring. Type L1.
 - B. Upper glazing: PET GAG plastic with EPDM low density sponge seal to minimize condensation and bug, dirt, and air infiltration per ASTM E283. The nominal thickness is 0.039 inches (0.99 mm).
 - 1. Natural Effect Lens: Type LN.
- 5.8 Catalog Number:S290 DS-DA-PB-FP-L1-LN
290 DS = Brighten Up Series Solatube 290 DS (14 in/350 mm Daylighting System) for Hard Ceiling
DA = Acrylic Dome
PB = Dome Edge Protection Band
FP = 4-inch Pitched Metal, Self Mounted
L1 = Classic OptiView Diffuser
LN = Natural Effect Lens

ACCESSORIES

- E. Fasteners: Same material as metals being fastened, non-magnetic steel, non-corrosive metal of type recommended by manufacturer, or injection molded nylon.
- F. Sealant: Polyurethane or copolymer based elastomeric sealant as provided or recommended by manufacturer.

EXECUTION

EXAMINATION

- G. Do not begin installation until substrates have been properly prepared.
- H. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

PREPARATION

- I. Clean surfaces thoroughly prior to installation.

- J. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- K. Coordinate requirements for power supply, conduit and wiring.

INSTALLATION

- L. Install in accordance with manufacturer's printed instructions.
- M. After installation of first unit, field test to determine adequacy of installation. Conduct water test in presence of Owner, Architect, or Contractor, or their designated representative. Correct if needed before proceeding with installation of subsequent units.
- N. Inspect installation to verify secure and proper mounting. Test each fixture to verify operation, control functions, and performance. Correct deficiencies.

PROTECTION

- O. Protect installed products until completion of project.
- P. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 10155 – TOILET COMPARTMENT DOORS

GENERAL

SECTION INCLUDES

- B. Solid Color Reinforced Composite (SCRC) Substrate: (Bobrick SierraSeries)
 - 1. Toilet partition doors only.

RELATED SECTIONS

- C. Section 04200 – Unit Masonry.
- D. Section 10810 - Washroom Accessories, for accessories.

SUBMITTALS

- E. Submit under provisions of Section 01300.
- F. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.
 2. Storage and handling requirements and recommendations.
 3. Installation methods.
- G. USGBC LEED Submittals:
1. For Bobrick SierraSeries: Indoor Environmental Quality Credit IEQ 4 - No Added Urea Formaldehyde; submit manufacturer's certification that composite and agrifiber products contain no added urea-formaldehyde resins and that laminating used to fabricate on-site and shop-applied composite wood and agrifiber contain no added urea-formaldehyde resins.
- H. Shop Drawings: Submit manufacturer's shop drawings for each product specified, including the following:
1. Details of construction and attachment to adjacent construction.
 2. Show anchorage locations and accessory items.
 3. Verify dimensions with field measurements prior to final production of toilet compartment doors.
- I. Verification Samples: For each finish product specified, three samples, minimum size 6 inches (150 mm) square representing actual product, color, and patterns.

QUALITY ASSURANCE

- J. Manufacturer Qualifications: Minimum 10 year experience manufacturing similar products.
- K. Installer Qualifications: Minimum 2 year experience installing similar products.
- L. Single Source Requirements: To the greatest extent possible provide products from a single manufacturer.
- M. Accessibility Requirements: Comply with requirements applicable in the jurisdiction of the project, including but not limited to ADA and ICC/ANSI A117.1 requirements as applicable.
- N. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
1. Finish areas designated by Architect.
 2. Do not proceed with remaining work until workmanship is approved by Architect.
 3. Refinish mock-up area as required to produce acceptable work.

PRE-INSTALLATION MEETINGS

- O. Convene minimum two weeks prior to starting work of this section.

DELIVERY, STORAGE, AND HANDLING

- P. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
- Q. Handling: Handle materials to avoid damage.

PROJECT CONDITIONS

- R. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

SEQUENCING

- S. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

WARRANTY

- T. Manufacturer's Warranty (SierraSeries): Manufacturer's standard 25 year limited warranty for doors against breakage, corrosion, delamination, and defects in factory workmanship. Manufacturer's standard 1 year guarantee against defects in material and workmanship for stainless steel door hardware and mounting brackets.

PART 5 - PRODUCTS

MANUFACTURERS

- A. Acceptable Manufacturer: Bobrick Washroom Equipment, Inc., which is located at: 11611 Hart St. ; North Hollywood, CA 91605-5882; Tel: 818-764-1000; Fax: 818-503-1930; Email: [request info \(info@bobrick.com\)](mailto:info@bobrick.com); Web: www.bobrick.com
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

SOLID COLOR REINFORCED COMPOSITE (SCRC) SUBSTRATE (SierraSeries)

- C. Solid Color Reinforced Composite (SCRC) Toilet Partition Doors: Bobrick SierraSeries.
 - 1. Design Type:
 - A. Standard Height.
 - 1. Door/Panel Height: 58 inches (147 cm).
 - 2. Floor Clearance: 14 inches (30 cm).

2. Gap-Free interlocking design.
3. Mounting:
 - A. Wall-mounted.
 1. Door Mounting Height: 72 inches (178 cm).
- D. Materials: Solid color reinforced composite (SCRC) material for doors with Bobrick GraffitiOff coating, thermoset and integrally fused into homogenous piece; high density polyethylene (HDPE), high density polypropylene not acceptable.
 1. Composition: Dyes, organic fibrous material, and polycarbonate/phenolic resins.
 2. Surface Treatment: Non-ghosting, graffiti resistant surface integrally bonded to core through a manufacturing steps requiring thermal and mechanical pressure.
 3. Edges: Same color as the surface.
 4. Color: As indicated on Drawings, SC01 Golden Khaki.
- E. Performance Requirements:
 1. Graffiti Resistance (ASTM D 6578): Passed cleanability test; 5 staining agents.
 2. Scratch Resistance (ASTM D 2197): Maximum load value exceeds 10 kilograms.
 3. Impact Resistance (ASTM D 2794): Maximum impact force exceeds 30 inch-pounds.
 4. Smoke Developed Index (ASTM E 84): Less than 450.
 5. Flame Spread Index (ASTM E 84): Less than 75.
 6. National Fire Protection Association/International Building Code Interior Wall and Ceiling Finish: Class B.
 7. Uniform Building Code: Class II.
 8. Finished Thickness: Doors: 3/4 inch (19 mm).
- F. Anchors: Expansion shields and threaded rods at block wall connections as applicable.
- G. Hardware: Chrome-plated "Zamak", aluminum, extruded plastic hardware not acceptable.
 1. Compliance: Operating force of less than 5 lb (2.25 kg).
 2. Emergency Access: Hinges, latch allow door to be lifted over keeper from outside compartment on inswing doors.
 3. Materials: 18-8, Type 304, heavy-gauge stainless steel with satin finish.
 4. Doorstops: Prevents inswinging doors from swinging out beyond stile.
 5. Fastening: Hardware secured to door and block wall by through-bolted, theft-resistant, pin-in-head Torx stainless steel machine screws into factory-installed, threaded brass inserts. Fasteners secured directly into core not acceptable.
 - A. Threaded Brass Inserts: Factory-installed; withstand direct pull force exceeding 1500 lb (680 kg) per insert.

6. Clothes Hooks: Through-bolted. Projecting no more than 1-1/8 inch (29 mm) from face of door.
7. Door Hardware Type:
 - A. Institutional Hardware 1092.67
 1. Latching: 14 gauge (2 mm) sliding door latch, 11 gauge (3.2 mm) keeper; latch slides on a shock-resistant nylon track.
 2. Hinges: 16 gauge (1.6 mm) stainless steel, self-closing, hinges run full length of the doors.

PRODUCTS

PREPARATION

- H. Prepare substrates using methods recommended by the manufacturer for achieving the best result for the substrates under the project conditions.
 1. Inspect areas scheduled to receive compartments for correct dimensions, plumbness of walls, and soundness of surfaces that would affect installation of hardware.
 2. Verify spacing of plumbing fixtures to assure compatibility with installation of doors.
- I. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.
- J. Do not proceed with installation until substrates have been properly prepared at points of attachment and deviations from manufacturer's recommended tolerances are corrected. Commencement of installation constitutes acceptance of conditions.

INSTALLATION

- K. Install products in strict compliance with manufacturer's written instructions and recommendations, including the following:
 1. Verify location does not interfere with door swings or use of fixtures.
 2. Use fasteners and anchors suitable for substrate and project conditions
 3. Install doors rigid, straight, plumb, and level.
 4. Conceal evidence of drilling, cutting, and fitting to room finish.
 5. Test for proper operation.

ADJUSTING, CLEANING AND PROTECTION

- L. Adjust hardware for proper operation after installation. Set hinge cam on in-swinging doors to hold doors open when unlatched. Set

hinge cam on out-swinging doors to hold unlatched doors in closed position.

- M. Touch-up, repair or replace damaged products.
- N. Clean exposed surfaces of compartments, hardware, and fittings.

END OF SECTION

SECTION 073113 - FIBERGLASS-BASED ASPHALT SHINGLES & ACCESSORIES

GENERAL

SECTION INCLUDES

- C. Roof shingles and accessories including the following:
 - 1. Fiberglass-based asphalt shingles.
 - 2. Ridge shingles.
 - 3. Starter shingles.
 - 4. Self-adhering ice and water barrier.
 - 5. Shingle underlayment.
 - 6. Fasteners.
 - 7. Metal drip edge.

RELATED **SECTIONS**

- D. Section 061000 - Rough Carpentry.
- E. Section 08625 – Tubular Daylighting Device.

REFERENCES

- F. ASTM International (ASTM):
 - 1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 2. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 - 3. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

4. ASTM D228 - Standard Test Method for Sampling, Testing, and Analysis of Asphalt Roll Roofing, Cap Sheets, and Shingles Used in Roofing and Waterproofing.
 5. ASTM D3018 - Standard Specification for Class A Asphalt Shingles Surfaced with Mineral Granules.
 6. ASTM D3161 - Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method).
 7. ASTM D3462 - Standard Specification for Asphalt Shingles Made from Glass felt and Surfaced with Mineral Granules.
 8. ASTM D6381 - Standard Test Method for Measurement of Asphalt Shingle Mechanical Uplift Resistance.
 9. ASTM D7158 - Standard Test Method for Wind Resistance of Sealed Asphalt Shingles (Uplift Force/Uplift Resistance Method).
 10. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings.
 11. ASTM F1667 - Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.
- G. California Building Standards Commission (CBSC):
1. California Building Code, California Code of Regulations Title 24.
- H. International Code Council (ICC):
1. International Residential Code (IRC).
 2. International Building Code (IBC).
 3. ICC-ES Evaluation Reports.
 4. ICC-ES Acceptance Criteria.
- I. Underwriters Laboratories (UL):
1. UL 790 - Standard Test Methods for Fire Test of Roof Coverings.
 2. UL 997 – Wind Resistance of Prepared Roof Covering Materials.
 3. UL 2218 - Impact Resistance of Prepared Roof Covering Materials.
 4. UL 2390 - Test Method for Wind Resistant Asphalt Shingles with Sealed Tabs.
- J. Underwriters Laboratories Evaluation Services (UL-ES):
1. UL-ES Evaluation Reports.
- K. Environmental Protection Agency (EPA): ENERGY STAR Rating System.
- L. Cool Roof Rating Council (CRRC): Product Rating Program.
- M. US Green Building Council (USGBC): Leadership in Energy and Environmental Design (LEED).

SUBMITTALS

- N. Submit under provisions of Section 01300.

O. Product Data: Manufacturer's data sheets and detail drawings for each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Product literature.
4. Installation methods.
5. Standard color chart of metal drip edge for architect to select color.

P. Verification Samples: For each product and finish specified, two samples representing actual products and colors.

Q. Copy of Warranty: For warranty specified in Par. 1.8 in this Section.

QUALITY ASSURANCE

R. Manufacturer Qualifications: Provide all primary roofing products, including shingles, underlayment, leak barrier, and ventilation, by a single manufacturer.

S. Installer Qualifications: Installer shall follow Owens Corning Roofing and Asphalt published installation instructions.

1. Installer shall be an Owens Corning Roofing Preferred Contractor as defined and certified by manufacturer.

DELIVERY, STORAGE, AND HANDLING

T. Deliver materials to site in manufacturer's unopened bundles with labels intact and legible.

U. Store all products in manufacturer's unopened, labeled packaging until they are ready for installation.

V. Handle and store materials on site to prevent damage. Store products in a covered, ventilated area, at temperature not more than 110 degrees Fahrenheit (43 degrees Celsius); do not store near steam pipes, radiators, or in direct sunlight.

W. Store bundles on a flat surface. Do not stack product more than 2 pallets high. If stacking 2 pallets high, use separator boards to protect the shingles below. Store all rolls on end.

X. Do not install underlayment or shingles on wet surfaces.

Y. Store and dispose of solvent-based materials in accordance with all federal, state and local regulations.

- Z. For rooftop loading, lay shingle bundles flat. Do not bend over the ridge.

PROJECT CONDITIONS

- AA. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install systems under environmental conditions outside manufacturer's recommended limits.
 - 1. Proceed with work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturer's recommendations.

WARRANTY

- A. Manufacturer's Extended Warranty: Provide to the Owner manufacturer's standard extended warranty coverage labor and materials in the event of a material defect. Refer to actual warranty for complete details, limitations and requirements.
 - 2. System Protection Roofing Limited Warranty includes up to 50 years of Tru Protection® (non-prorated) coverage on installed Owens Corning Roofing System products and labor. The length of the Tru Protection® coverage is based upon the shingle product installed on the field of the roof. Coverage can only be provided by a designated Owens Corning Roofing Preferred or Platinum Preferred Contractor.

PRODUCTS

MANUFACTURERS

- BB. Acceptable Manufacturer: Owens Corning Roofing and Asphalt, LLC. One Owens Corning Pkwy. Toledo, OH 43659. Toll Free: 1-800-ROOFING. Email: ocbuildingspec@owenscorning.com. Web: www.owenscorning.com.
- CC. Requests for substitutions will be considered in accordance with provisions of Section 01600.

ROOF SHINGLES

- A. Duration® Premium (Non Algae Resistant) Shingles: As manufactured by Owens Corning Roofing and Asphalt, LLC.
 - 1. Nominal Size: 13-1/4 in (337 mm) by 39-3/8 in (1000 mm).
 - 2. Exposure: 5-5/8 in (143 mm).
 - 3. Shingles per Square: 64.
 - 4. Bundles per Square: 4 bundles of 16 shingles.

5. Coverage per Square: 98.4 sq ft (9.1 sq m).
6. Color: "Driftwood".
7. Standards/Qualifications: ASTM D228, ASTM D3018 (Type 1), ASTM D3161 (Class F Wind Resistance), ASTM D3462, ASTM D7158 (Class H Wind Resistance), ASTM E108/UL 790 (Class A Fire Resistance), ICC-ES AC438, and UL ER2453-01.

HIP AND RIDGE SHINGLES

Provide ridge shingles color formulated to match field of roof.

- DD. High Ridge Hip and Ridge (Non Algae Resistant) Shingles with Sealant: As manufactured by Owens Corning Roofing and Asphalt, LLC.
1. Layered construction adds performance and dimension to the hip and ridge.
 2. Nominal Size: 12 in (305 mm) by 12 in (305 mm) with 8 in (203 mm) exposure.
 3. Standards/Qualifications: ASTM D228, ASTM D3018 (Type 1), ASTM D3161 (Class F Wind Resistance), ASTM D3462, ASTM E108/UL 790 (Class A Fire Resistance), ICC-ES AC438, and UL ER2453-01.

STARTER SHINGLES

- EE. Starter Strip PLUS: As manufactured by Owens Corning Roofing and Asphalt, LLC.
1. Nail applied starter course. Individual starter shingle is 7-3/4 in (197 mm) by 39-3/8 in (1000 mm).
 2. Standards/Qualifications: ASTM D3462, ASTM D3161 (Class F Wind Resistance), ASTM E108/UL 790 (Class A Fire Resistance), ICC-ES AC438, UL ER2453-01, Florida Product Approval (FL10674), and Miami-Dade County Product Approval (09-0915.12).

SELF-ADHERING ICE AND WATER BARRIER

- FF. WeatherLock® Mat: As manufactured by Owens Corning Roofing and Asphalt, LLC.
1. Mat-faced skid resistant surface, self-adhering, self sealing, bituminous ice and water barrier.
 2. Roll Width: 36 in (914 mm).
 3. Selvage: 3 in (76 mm).
 4. Standards/Qualifications: ASTM D1970, ASTM E108/UL 790 (Class A Fire Resistance), ICC-ESR 1783, CCMC 13403-R, Florida Product Approval (FL9777), and Miami-Dade County Product Approval (12-1114.01).

SHINGLE UNDERLAYMENT

- GG. Deck Defense® High Performance Roof Underlayment.
1. Weather-shedding synthetic polyolefin barrier.

2. Roll Width: 48 in (1219 mm).
3. Roll Length: 125 ft (38.1 m) and 250 ft (76.2 m).
4. Coverage Per Roll: 5 and 10 roof squares.
5. Standards/Qualification: ASTM E108/UL 790 (Class A Fire Resistance), ICC-ESR 3229, CAN/CSA A220.1 Series-06, Florida Product Approval (FL14299), and Miami-Dade County Product Approval (11-0912.05).

SKYLIGHTS

HH. Refer to Section 08625 – Tubular Daylighting Device.

FASTENERS

- II. Fasteners: Galvanized steel, stainless steel complying with ASTM F1667, minimum 12 gauge, 0.0808 in (2.05 mm) shank with 3/8 in (9.5 mm) diameter head.
- JJ. All fasteners must be driven flush with the shingle surface and penetrate at least 3/4 in (19.1 mm) into the wood deck. Where the deck is less than 3/4 in (19.1 mm) thick, the fastener should be long enough to penetrate fully and extend through roof sheathing.

METAL FLASHING

KK. Flashing: Provide drip edge aluminum flashing with standard Kynar finish. Provide color chart for architect to select color.

EXECUTION

EXAMINATION

- LL. Prior to starting work, examine all roof decks on which work is to be applied for defects in materials and workmanship which may be detrimental to the proper installation or long-term performance of the shingles.
- MM. Underlayment and shingles installed directly over roof insulation or similar type decks is not approved.
 1. Roof deck must be dry, minimum 15/32 in thick, APA rated sheathing (exposure 1).
 2. Ventilation under the roof deck must meet local code requirements.
- NN. Do not begin installation until the roof deck has been properly prepared.

- OO. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
Commencement of installation constitutes acceptance of conditions.

PREPARATION

- PP. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- QQ. Verify installed roof deck is acceptable to receive shingles.
Acceptable roof decks include the following:
1. Lumber sheathing: 6 in (152 mm) minimum width, 25/32 in (19.8 mm) minimum thickness.
 2. Plywood sheathing: 15/32 in (9.5 mm) minimum thickness
Exposure 1 grade plywood sheathing as recommended by APA and in compliance with applicable Codes.
 3. Spacing between boards or panels shall not exceed 1/4 in (6.4 mm) between roof boards or between plywood or OSB sheathing panels.
- RR. Verify that the deck is dry, structurally sound, clean and smooth. It shall be free of any depressions, waves, and projections. Cover with minimum 28 gauge; 0.0187 in (0.475 mm) galvanized steel, 0.0156 in (0.396 mm) stainless steel all holes 1 in (25 mm) or less in diameter, cracks over 1/2 in (13 mm) in width, loose knots and excessively resinous areas. Decking or deck boards with holes greater than 1 in (25 mm) in diameter shall be replaced.
- SS. Verify that the deck is structurally sound and free of deteriorated decking. All deteriorated and damaged decking shall be removed and replaced with new materials.
- TT. Clean deck surfaces thoroughly prior to installation of self-sealing ice and water barrier and underlayment.

UNDERLAYMENT APPLICATION

- UU. Install in accordance with manufacturer's instructions.
1. Install using methods recommended by shingle manufacturer and in accordance with local building codes. When local codes and application instructions are in conflict, the local code requirements shall take precedence.
 2. Install self-adhering ice and water barrier from the eaves edge of roof up the slope a full 36 in (914 mm) but not less than 24 in (610 mm) beyond the interior edge of the exterior wall. On roofs with pitch from 2:12 up to 4:12, see application instructions printed on each package.

VV. Drip Edge

1. Drip edge shall be installed on all roof edges.
2. Install drip edge on eaves first with underlayment installed over the drip edge.
3. Install drip edge on rakes after underlayment is installed, with the drip edge fastened over the underlayment.
4. Joints in drip edge shall be lapped minimum 2 in (51 mm) with the upslope piece lapped over the down slope piece.
5. Install fastener 8 in to 10 in (203 mm to 254 mm) on center, approximately 1-3/4 in (44 mm) from the outside edge of the drip edge.

WW. Roof Deck

1. On roofs with pitch between 2:12 to less than 4:12, see application instructions printed on each shingle wrapper, or follow local code requirements.

XX. Penetrations

1. Vent pipes: Install a 24 in (610 mm) square piece of self-adhering ice and water barrier lapping over roof deck underlayment; seal tightly to pipe.
2. Tubular Daylighting Device: Install a 36 in (610 mm) square piece of self-adhering ice and water barrier lapping over roof deck underlayment; seal tightly to tube.

SHINGLE INSTALLATION

YY. Install shingles in accordance with manufacturer's printed installation instructions.

ZZ. Install starter course at lowest roof edge and along rake with edge of shingles extending 1/4 in (6.4 mm) over edge of roof.

AAA. Install first and successive courses of shingles stepping diagonally up and across roof deck with manufacturer's recommended offset at each succeeding course. Maintain uniform exposure of shingles at each succeeding course.

BBB. Fasten shingles to deck with manufacturer's recommended number of roofing nails per shingle, or in accordance with local codes.

CCC. Install ridge shingles at ridges in accordance with manufacturer's recommendations and local code requirements.

PROTECTION

DDD. Protect installed products until completion of project.

EEE. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 099113 – EXTERIOR PAINTING (& Interior Painting For Open-Air Bldgs)

GENERAL

RELATED DOCUMENTS

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

SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following exterior substrates:
1. Concrete.
 2. Concrete masonry units (CMU).
 3. Steel.
 4. Galvanized metal.
 5. Aluminum (not anodized or otherwise coated).
 6. Wood.
 7. Fiber- cement panel.
- B. Related Requirements:
1. Section 051200 "Structural Steel Framing" for shop priming of metal substrates with primers specified in this Section.
 2. Section 099600 "High-Performance Coatings" for special-use coatings.
 3. Section 099123 "Interior Painting" for surface preparation and the application of paint systems on interior substrates.
 4. Section 099300 "Staining and Transparent Finishing" for surface preparation and the application of wood stains and transparent finishes on exterior wood substrates.

DEFINITIONS

- FFF. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. Gloss Level 2: Not more than 10 units at 60 degrees and 35 units at 85 degrees, according to ASTM D 523.
- C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to

- ASTM D 523.
- D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
 - E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
 - F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
 - G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.
 - H. EG: Ethylene Glycol. Ethylene glycol is listed as a hazardous air pollutant (HAP) by the U.S. EPA
 - I. Blocking: Two painted surfaces sticking together such as a painted door sticking to a painted jamb.
 - J. RAVOC: Reactivity adjusted VOC 'Reactivity' means the ability of a VOC to promote ozone formation.
 - K. PDCA: Painting & Decorating Contractors of America www.pdca.org
 - L. SSPC: Scopes of SSPC Surface Preparation Standards and Specifications. www.sspc.org.
 - M. Green Wise: Green Wise products are tested in an ISO accredited laboratory to meet environmentally determined performance standards established by Coatings Research Group, Inc.

SUBMITTALS

Submit under provisions of Section 01300.

- A. Product Data: For each type of product, include preparation requirements and application instructions.
- GGG. Verification Samples: For each type of paint system and each color and gloss of topcoat.
1. Submit Samples on rigid backing, no smaller than 7 inches by 10 inches (177.8 mm by 254 mm) or larger than 8.5 inches by 11 inches (215.9 mm by 279.4 mm).
 2. Label each sample for project, architect, general contractor, painting contractor, paint color name and number, paint brand name, Color Schedule designation number as indicated on Drawings, and application area.

MAINTENANCE MATERIALS SUBMITTALS

- A. Furnish extra materials of each material and product applied, minimum 1 gallon, from the same product run that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
 - b. Other Items: Architect will designate items or areas required.
 - 2. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in manufacturer's unopened bundles with labels intact and legible.
- B. Store all products in manufacturer's unopened, labeled packaging until they are ready for installation.
- C. Handle and store materials on site to prevent damage. Store products in a covered, well-ventilated area, with ambient temperature continuously maintained not more than 110 degrees Fahrenheit (43 degrees Celsius) and not less than 45 deg F (7 deg C); do not store near steam pipes, radiators, or in direct sunlight.
- D. Maintain containers in clean condition, free of foreign materials and residue.
- E. Remove rags and waste from storage areas daily.

PROJECT FIELD CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install paint systems under environmental conditions outside manufacturer's recommended limits.
 - 1. Proceed with work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturer's recommendations.
 - 2. Do not apply paints in snow, rain, fog or mist; when relative humidity exceeds 85%; at temperatures less than 5degF above the dew point; or to damp or wet surfaces.

WARRANTY

- A. Manufacturer's Extended Warranty: Provide to the Owner manufacturer's standard extended warranty coverage labor and materials in the event of a material defect. Refer to actual warranty for complete details, limitations and requirements.
 - 2. System Protection Roofing Limited Warranty includes up to 50 years of Tru Protection® (non-prorated) coverage on installed Owens Corning Roofing System products and labor. The length of the Tru Protection® coverage is based upon the shingle product installed on the field of the roof. Coverage can only be provided by a designated Owens Corning Roofing Preferred or Platinum Preferred Contractor.

PRODUCTS

MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide products listed from Dunn-Edwards Corporation for the paint category indicated, or comparable products by one of the following:
 - 1. Sherwin Williams.
 - 2. Benjamin Moore.
- B. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to products listed in other Part 2 articles for the paint category indicated.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

1.2 PAINT, GENERAL

- A. Material Compatibility

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. VOC Content: Provide materials that comply with VOC limits of authorities having jurisdiction.
- C. LEED Credit: Products that meet LEED requirements are eligible for use on interior substrates. Incorporating LEED materials on exteriors will not contribute to points towards IEQ 4.2.
- D. Colorants: The use of colorants containing hazardous chemicals, such as ethylene glycol, is prohibited.
- E. Colors: As indicated in the Color Schedule on the Drawings.

1.3 BLOCK FILLERS

- A. Block Filler, Latex, Interior/Exterior Precision Block: Dunn-Edwards, Smooth Blocfil Select SBSL00 Smooth Block Filler, MPI #4.
1. Physical Properties: Spec:
 - a. Resin Type: Modified Copolymer
 - b. Solids by Volume: 50.5% +/-2%
 - c. Acrylic Resin: 7.8%
 - d. VOC: 50 g/L
 - e. RAVOC: 35 g/L
 - f. Conforms to: LEED 2009 IEQ Credit 4.2
 - g. Certification: Green Wise
 2. Testing: Results:
 - a. Topcoat Adhesion per ASTM D 3359 Method B: Minimum #3
 - b. Alkali Resistance per MPI #4
Detailed Performance Standard: No signs of blistering, lifting, wrinkling, disintegrating or more than slight color change compared to unexposed

1.4 PRIMERS / SEALERS

- A. Interior/Exterior: Dunn-Edwards
1. Precision and Split-face Concrete Block:
 - a. Ultrashield Multi-Surface Primer ULMS00, single component, bonding
water-based 100% acrylic primer, low sheen. Solids by Volume

40%,

Acrylic Resin 43.3%, Prime pigment 13.7%, EG Free, 0 g/L VOC, 0 g/L RAVOC, Conforms to LEED 2009 IEQ Credit 4.2.

- 2. New fiber-reinforced Cement Board, stucco, prefinished foam and gfrc:

- a. EFF-Stop ESSL00 100% acrylic masonry primer/sealer, Solids by Volume 37% +/- 2%, Acrylic Resin 21%, EG Free, 50

g/L VOC,

30 g/L RAVOC, Conforms to LEED 2009 IEQ Credit 4.2, Green

Wise

Certification.

- b. Ultrashield Multi-Surface Primer ULMS00, single component, bonding

water-based 100% acrylic primer, low sheen. Solids by Volume

40%,

Acrylic Resin 43.3%, Prime pigment 13.7%, EG Free, 0 g/L VOC, 0 g/L RAVOC, Conforms to LEED 2009 IEQ Credit 4.2.

1.5 METAL PRIMERS

- A. Interior/Exterior: Dunn-Edwards

- 1. New Galvanized Steel and Galvanized Sheet Metal

- a. Pretreatment: Supreme Chemical Metal Clean

& Etch ME01.

- b. Ultrashield Multi-Surface Primer ULMS00, single component, bonding

water-based 100% acrylic primer, low sheen. Solids by Volume

40%,

Acrylic Resin 43.3%, Prime pigment 13.7%, EG Free, 0 g/L VOC, 0 g/L RAVOC, Conforms to LEED 2009 IEQ Credit 4.2.

- 2. Previously Painted Metal

- a. Ultrashield Multi-Surface Primer ULMS00, single component, bonding

water-based 100% acrylic primer, low sheen. Solids by Volume

40%,

Acrylic Resin 43.3%, Prime pigment 13.7%, EG Free, 0 g/L VOC, 0 g/L RAVOC, Conforms to LEED 2009 IEQ Credit 4.2.

1.6 WOOD PRIMERS

- A. Interior/Exterior: Dunn-Edwards
 - 1. Galvanized Steel and Galvanized Sheet Metal
 - a. EZ-Prime Premium EZPR00 exterior acrylic wood primer. Solids by Volume 41% +/- 2%, Acrylic Resin 23.7%, Prime Pigment 14.4%, EG Free, 50 g/L VOC, 20 g/L RAVOC, Conforms to LEED 2009 IEQ Credit 4.2, Green Wise Certification.
 - b. Ultrashield Multi-Surface Primer ULMS00, single component, bonding water-based 100% acrylic primer, low sheen. Solids by Volume 40%, Acrylic Resin 43.3%, Prime pigment 13.7%, EG Free, 0 g/L VOC, 0 g/L RAVOC, Conforms to LEED 2009 IEQ Credit 4.2.
 - c. Wood-Knot Sealer: Rust-Oleum Zinsser BIN, MPI#36, as distributed by Dunn-Edwards. Description: Pigmented shellac.
 - 2. Previously Painted Wood
 - a. Ultra-Grip Premium Primer UGPR00, bonding water-based acrylic primer, low sheen. Solids by Volume 41% +/- 2%, Acrylic Resin 22.8%, Prime Pigment 15.1%, EG Free, 50 g/L VOC, 20 g/L RAVOC, Conforms to LEED 2009 IEQ Credit 4.2, Green Wise Certification.

1.7 **EPOXY PRIMERS** (Not Used)

1.8 **WATER-BASED PAINTS**

- A. Interior/Exterior: Dunn-Edwards
 - 1. Ultrashield ULSH40 Series, High Performance Zero VOC Architectural Coating. Water Based, low sheen (Gloss Level 4)
 - a. Physical Properties: Acrylic Urethane Resin, Solids by Volume 33% +/- 3%, Acrylic Resin 51.6%, Prime Pigment 23.2%, EG Free, 0 g/L VOC, 0 g/L RAVOC, Conforms to LEED 2009 IEQ Credit 4.2.
 - b. Testing:
 - 1) Accelerated Weathering per ASTM D 4587 QUV Type A bulb, 450 hours. Results: 93% gloss retention (Gloss Black)

- 2) Impact Resistance Per ASTM D2794. Results: >160 lbs (direct).
 - 3) Conical Flexibility per ASTM D522. Results: >33%.
 - 4) Pencil Hardness per ASTM D3363. Results: 3B.
2. Ultrashield ULSH50 Series, High Performance Zero VOC Architectural Coating,
Water Based, Direct-To-Metal, Semi-Gloss (Gloss Level 4)
- c. Physical Properties: Acrylic Urethane Resin, Solids by Volume 40% +/- 2%, Acrylic Resin 55.5%, Prime Pigment 19.4%, EG Free, 0 g/L VOC, 0 g/L RAVOC, Conforms to LEED 2009 IEQ Credit 4.2.
 - d. Testing:
 - 1) Cyclical Prohesion per ASTM D 5894, 2 cycles, 672 hours. Results: 10 per ASTM D714 for blistering, 10 per ASTM D1654 for corrosion, 10 per ASTM D610 for rusting. (Rating 1-10, 10= best)
 - 2) Crosshatch Adhesion per ASTM D3359-87. Results: 5A.
 - 3) Conical Flexibility per ASTM D522. Results: 180 deg on ½" Mandrel.
 - 4) Salt Spray Resistance per ASTM B117, CRS, 30 day cure. Results: >800 hours (@ 4 mils DFT).
3. Ultrashield ULSH60 Series, High Performance Zero VOC Architectural Coating,
Water Based, Direct-To-Metal, Gloss (Gloss Level 6)
- a. Physical Properties: Acrylic Urethane Resin, Solids by Volume 37% +/- 1%, Acrylic Resin 52.4%, Prime Pigment 23.2%, EG Free, 0 g/L VOC, 0 g/L RAVOC, Conforms to LEED 2009 IEQ Credit 4.2.
 - b. Testing:
 - 5) Accelerated Weathering per ASTM D 4587 QUV Type A bulb, 450 hours. Results: 93% gloss retention (Gloss Black)
 - 6) Impact Resistance Per ASTM D2794. Results: >160 lbs (direct).
 - 7) Conical Flexibility per ASTM D522. Results: >33%.
 - 8) Pencil Hardness per ASTM D3363. Results: 3B.
4. Evershield EVSH10 exterior acrylic flat paint.
 5. Evershield EVSH10 exterior acrylic eggshell paint.

1.9 FLOOR COATINGS

- A. Rain Guard Micro-Seal, clear matte finish.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Concrete: 12 percent.
 - 2. Masonry (Clay and CMU): 12 percent.
 - 3. Wood: 15 percent.
 - 4. Portland Cement Plaster: 12 percent.
 - 5. Gypsum Board: 12 percent.
- C. Portland Cement Plaster Substrates: Verify that plaster is fully cured, including pH testing to determine that alkalinity is within limits established by the manufacturer.
- D. Exterior Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- E. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- F. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to
reinstall items that were removed. Remove surface-applied protection.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
 - E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.
- F. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer[.] [but not less than the following:]
 1. SSPC-SP 1, "Solvent Cleaning."
 2. SSPC-SP 2, "Hand Tool Cleaning."
 3. SSPC-SP 3, "Power Tool Cleaning."
 4. SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 5. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
 6. SPC-SP 11, "Power Tool Cleaning to Bare Metal."
- G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
 - I. Aluminum Substrates: Remove loose surface oxidation.
 - J. Wood Substrates:
 1. Scrape and clean knots. Before applying primer, apply coat of knot sealer recommended in writing by topcoat manufacturer for exterior use in paint system indicated.

2. Sand surfaces that will be exposed to view, and dust off.
3. Prime edges, ends, faces, undersides, and backsides of wood.
4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

3.3 APPLICATION

- B. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."
1. Use applicators and techniques suited for paint and substrate indicated.
 2. The number of coats scheduled is the minimum number of coats required. Additional coat(s) shall be applied at no additional cost to the Owner, to completely hide base material, provide uniform color, and to produce satisfactory finish results.
 3. Apply coatings without thinning except as specifically required by label directions, or required by these specifications. In such cases, thinning shall be the minimum reduction permitted.
 4. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
 5. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
 6. Paint entire exposed surface of window frames and sashes.
 7. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 8. Priming may not be required on items delivered with prime or shop coats, unless otherwise specified. Touch up prime coats applied by others as required ensuring an even primed surface before applying finish coat.
- B. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and

- appearance.
- C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
 - D. Block Fillers: Provide block fill as scheduled to conform to the following: PDCA Standard P12-05.
 - 1. Level 3 - Premium fill: One or multiple coats of high performance block filler manufactured to be applied at a high dry film build. Block filler shall be back-rolled to eliminate voids and reduce the majority of the masonry profile depth.
 - E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
 - 1. Paint the following work where exposed to view at exterior and public interior spaces:
 - a. Equipment, including panelboards and switch gear.
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.
 - f. Plastic conduit.
 - g. Tanks that do not have factory-applied final finishes.

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
 - 1. Contractor shall touch up and restore painted surfaces damaged by testing.
 - 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
 - B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
 - D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 EXTERIOR AND INTERIOR PAINTING SCHEDULE

- A. MINIMUM COVERAGES (Color & Sheen per Color Schedule on the Drawings)
 - 1. Concrete Floors, coved grout at wall bases, and exterior porch paving:
 - a. 2 coats Rain Guard Micro-Seal, clear matte finish.
 - 2. Galvanized Steel: Doors & Frames, Exposed Steel Truss Connectors
 - a. Clean dirt, dust, oil, etc. & dry
 - b. Pretreatment: Supreme Chemical Metal Clean & Etch ME01.
 - c. 1st coat: Dunn-Edwards, Ultrashield Multi-Surface Primer ULMS00, single component, water-based acylic primer, low sheen. Zero VOC.
 - d. 2nd & 3rd coats Dunn-Edwards, Ultrashield ULSH40, single component, water-based urethane paint, low sheen. Zero VOC.
 - e. Field welds shall be ground smooth, zinc coated, primed & painted smooth w/ unnoticeable transition.
 - 3. Exterior Galvanized Metal:
 - a. Clean dirt, dust, oil, etc. & dry
 - b. Pretreatment: Supreme Chemical Metal Clean & Etch ME01.
 - c. 1st coat: Dunn-Edwards, Ultrashield Multi-Surface Primer

ULMS00, single component, water-based acylic primer, low sheen. Zero VOC.

- d. 2nd & 3rd coats Dunn-Edwards, Ultrashield ULSH40, single component, water-based urethane paint, low sheen. Zero VOC.
- e. Field welds shall be ground smooth, zinc coated, primed & painted smooth w/ unnoticeable transition.

4. New Exterior Wood:

- a. 2 coats EZ-Prime Premium EZPR00 exterior acrylic wood primer
- b. 2 coats of Evershield EVSH10 exterior acrylic flat paint.

5. New Fiber-reinforced Cement Board, Stucco, Prefinished Foam and GFRC:

INTERIOR & EXTERIOR

- a. 1 coat EFF-Stop ESSL00 acrylic masonry primer/sealer over Factory-primed finish.
- b. 2 coats of Evershield EVSH10 exterior acrylic eggshell paint.

6. New Concrete Block, precision & split-face.

INTERIOR & EXTERIOR

- a. Clean dirt, dust, oil, etc. & dry
- b. 1st coat Interior/Exterior Precision Block:
Dunn-Edwards, Smooth Blocfil Select SBSL00 Smooth Block

Filler

- c. 2nd and 3rd coats Precision Block and
1st & 2nd coats Split-face Block: Dunn-Edwards, Ultrashield Multi-Surface Primer ULMS00, single component, water-based acylic primer, low sheen.
- d. 3rd & 4th coats Dunn-Edwards, Ultrashield ULSH40, single component, water-based urethane paint, low sheen. Zero VOC.

7. Previously painted Concrete Paving:

- a. Remove loose paint, clean.
- b. 1 coat Rustoleum Porch and Floor, as starts to dry
- c. Add sand evenly for grit surface
- d. 2 coats Rustoleum Porch and Floor, eggshell finish.

8. Previously painted Stucco

- a. Spot prime w/ EFF-Stop ESSL00 acrylic masonry primer
 - b. 2 coats of Evershield EVSH10 exterior acrylic eggshell paint.
9. Previously painted Exterior Metal:
- a. Light sanding to promote adhesion
 - b. Spot prime w/ Dunn-Edwards, Ultrashield Multi-Surface Primer ULMS00, single component, water-based acrylic primer, low sheen.
 - c. 2 coats Dunn-Edwards, Ultrashield ULSH40, single component, water-based urethane paint, low sheen.
10. Exterior Galvanized Steel:
- a. Clean dirt, dust, oil, etc. & dry
 - b. Pretreatment: Supreme Chemical Metal Clean & Etch ME01.
 - c. 1st coat: Dunn-Edwards, Ultrashield Multi-Surface Primer ULMS00, single component, water-based acrylic primer, low sheen. Zero VOC.
 - d. 2nd & 3rd coats Dunn-Edwards, Ultrashield ULSH40, single component, water-based urethane paint, low sheen. Zero VOC.
 - e. Field welds shall be ground smooth, zinc coated, primed & painted smooth w/ unnoticeable transition.
11. Previously painted Exterior Wood:
- a. Light sanding to promote adhesion
 - b. Spot prime w/ Ultra-Grip Premium
 - c. 2 coats of Evershield EVSH10, exterior acrylic flat paint.

SECTION 130000 - BID ALTERNATE NO. 1 PREFABRICATED RESTROOM BUILDING

B. General, Specifications and Clarification of Prefabricated Building and Site Installation

1. This portion of the bid specifications does not follow the CSI standard format as the prefabricated structure in this bid is an **offsite constructed "product"** and not "typical" general construction.
2. The **installation of the product on site is general construction**, which must be coordinated between the general contractor and the subcontractor. Specifications for the building foundation/pad shall be provided herein by the specified design/build subcontractor. Due to the responsibility of the specified building subcontractor for architecture, engineering and a five-year warranty, the site pad/foundation must meet the subcontractor's design so the pad and building can be considered from a single source for warranty purposes. The prefabricated

restroom subcontractor must accept the pad and compactions tests before they take responsibility for the entire system under their warranty.

C. Architectural Design/Engineering and Insurance Responsibility

1. While the City of Greenfield has provided bid specifications and a design for the building, the building design/build subcontractor remains legally responsible for architecture, engineering, and all applicable building, safety, health, fire, and accessibility code compliance. Since they hold professional design responsibility to the owner, the building subcontractor must furnish certification that they provide product liability insurance in the amounts required by the general specifications to cover property damage and personal injury. Final drawings shall be stamped by a licensed California engineer and California Department of Housing and Community Development, suitable for local permitting.

D. Errors and Omissions Insurance

1. The building design/build subcontractor must also provide an additional Professional Architectural and Engineering Errors and Omissions insurance, in the minimum amount of \$2,000,000, to cover claims against the owner or the general contractor for State and Federal ADA handicapped accessibility and other design/engineering code issues. This Errors and Omission Policy must remain in effect for 5 years from the completion and owner acceptance of the project. Products liability insurance (since it does not cover professional design responsibility only) will be insufficient for this bid and will be cause for rejection of the bidder.

E. Insurance for the Building offsite, while in transit, and/or on site until turn over and final owner acceptance

1. The subcontractor may request invoicing for a percentage of building completion in-plant, monthly. Under UCC law, this means that the subcontractor is turning over responsibility for the portion invoiced to the owner yet the building will not be on the owner's property and may not be covered by the owners insurance. Therefore, the building subcontractor must provide a separate insurance policy insuring the owner and general contractor as additionally insured for liability, damage and/or vandalism to the building while in the manufacturing facility, while in transit, and/or while in storage at a certified bonded storage facility or at the final project site for up to \$200,000 for each prefabricated building module, until the building is final accepted by owner.

F. General Contractor Coordination with Design/Build Subcontractor

1. The specified prefabricated public restroom building requires coordination between the General Contractor (who prepares the site pad and delivery access for the prefabricated storage building) and the prefabricated restroom building subcontractor (who completes the architectural design, engineering, off-site building construction, delivery and installation on site.) The specified prefabricated restroom building specifications include unique components/systems which are custom to the restroom building subcontractor. Since the prefabricated restroom subcontractor is responsible for design, additional insurance requirements for errors and omissions is required.

G. General Contractor, General Scope of Work

1. The general contractor for this project is responsible for the site survey and staking

the building location, finished slab survey elevations and marking on site, construction and compaction of the required building pad; access to the site for a large crane and tractor trailers delivering the prefabricated building; providing water, sewer, and power at a point of connection (POC) within 6 feet of the building and at the depth required by the building subcontractor and local code; and the installation of any sidewalks outside the building footprint.

2. The general contractor is responsible for verification to the building subcontractor design/build firm that there are no unanticipated site delivery issues such as overhead wires, trees, tree roots, or existing grade changes and that prevent a clear path of travel between a roadway and the final site exists for a tractor trailer and crane to expedite delivery. The design/build subcontractor requires that the general contractor certify that the required delivery crane must be able to set the building module/modules within 35' distance from the center of the building to the center of the crane hoist.

H. Prefabricated Restroom Building, General Scope of Work:

1. The prefabricated restroom building subcontractor will provide to the general contractor final building design architectural drawings and engineering calculations under the responsibility of a licensed structural engineer, in compliance with all local, state and federal codes. The prefabricated restroom subcontractor shall construct the building offsite as a permanently relocatable building, transport it to the final required destination, and install the building turn-key, (to 6' from the building footprint) on a general contractor prepared sub grade, per the drawings included in this bid.

H. Licensing:

The prefabricated restroom subcontractor must comply with all the State of California; Department of Housing and Community Development, prefabricated "Commercial Modular" requirements as follows:

1. The building *manufacturer* must be licensed by the State of California, Department of Housing as a manufacturer for the last five years, to verify experience.
2. Submit a copy of the all the current licenses for verification with bid.
3. The selling dealer must be a California licensed dealer and present their license for verification with the bid.
4. The licensed dealer must also possess a State of California Contractors License Board Class B License and present their license for verification with the bid.

I. Bid Standard for the Prefabricated Restroom Building

1. The City of Greenfield understands that there are several firms who design and build various types of public restroom buildings in varying quality and architectural styles, using similar or different construction methods and materials. For the purpose of this bid, the owner has selected:

Public Restroom Company, 2587 Business Parkway, Minden, Nevada, 89423 and specifies herein that this firm is the standard for architectural design (safety, green design, code compliance, and site specific compatibility.) or approved equal. Public Restroom Company is the standard of building performance and quality for the 50-year building design-life with low maintenance based upon the longevity of the materials selected. Other firms quoting "or equal" whose criteria and standards

do not comply will be rejected. Phone: 888-888-2060 extension 102, Fax: 888-888-1448, Website: www.publicrestroomcompany.com

2. Pre-cast concrete structures are not acceptable

J. “Or Equal Restroom Design/Build Subcontractors”

1. The City of Greenfield may also allow other firms to become qualified to bid but any firms so authorized to bid must comply with the bid specifications and plans, or be subject to post bid rejection.
2. In order to provide full and open competition, other firms may request approval as “or equal.” **The following items must be provided to the City in accordance with substitution requirements outlined in the project specifications.** Failure to supply these items will result in bid rejection.
 - a) Or Equal applicant shall provide with their bid submission, scaled floor plans and elevations, to show general architectural design criteria is met.
 - b) Or Equal applicant shall provide with their bid submission, a written list of each and every deviation from the published bid specifications/plans. Lack of specificity to each deviation from the bid specifications will be cause for rejection.
 - c) Or Equal applicant shall provide their bid submission, manufacturer’s certification of test compliance from a national independent testing laboratory (within the past year) to support the claim for absorption resistance of the slab type that will be used in their proposed restroom. The written report must state the concrete compressive strength (minimum of 7,000 PSI) and absorption resistance (not greater than 3%) per ASTM standard #C39 and #C642, respectively.
 - d) Or Equal applicant must provide a list of every building they designed and built over the last 3 years utilizing the same building materials/systems design criteria as published in this bid. Provide date of building bid, date of completion, and most knowledgeable owner contact.
 - e) Or equal applicant shall provide certification of the special insurance required in this bid.
 - f) Or Equal applicant shall be responsible for and bear all cost for architecture, plan checks, design and structural engineering and all fees in obtaining approvals and permits from applicable agencies.
3. The City of Greenfield or their consultant will be solely responsible for the decision to accept or reject the “or equal” submission.

K. Certificate of Off-site Inspection and Construction Compliance, Provision for Maintenance Manuals, and Warranty

1. The off-site restroom construction requires that a licensed third party inspection firm provide the owner and the local building official with certification and compliance for the building with the approved plans and specifications. A certificate of compliance shall be issued by this inspector to the local building official to provide certification that the building meets and or exceeds the approve plans and applicable codes including the current California Green Building Standards Code.
2. At the project conclusion, the building subcontractor shall furnish two sets of complete maintenance manuals including a troubleshooting guide, location of

manufacturers of key components for replacement parts together with final as-built plans, and a **five (5) year warranty** to the owner or general contractor.

L. Site Scope of Work by General Contractor

The general contractor shall prepare the restroom building pad to receive the prefabricated building in accordance with the bid documents.

1. The General Contractor shall provide 10' offset stakes and locate the front corners of the building, any existing utilities and inverts within the area of construction.
2. The building pad shall be excavated to 14" deep from the final building concrete slab elevation in accordance with the bid documents.
3. The building pad shall meet a 90% compaction in lifts using class 2 base for the first four inches and coarse sand for the last two inches of the pad, leaving the finished sub grade pad elevation at finished floor, minus 8".
4. The General Contractor shall provide water point of service at 30" below finished building slab; sewer at 24" below the finished building slab; and electrical at 36" below the finished building slab or other per bid plans.
5. General Contractor shall coordinate with restroom subcontractor to provide full site delivery access for a 70' tractor-trailer and hydro crane to the final building site.
6. If the final site access is over existing sidewalks, utilities, or landscaping, the General Contractor shall be responsible for plating and or tree trimming, utility line removal, or other to protect any existing conditions.
7. The hydro crane must be able to locate no greater than 35' from the center point of the building to the center point of the crane.
8. The utilities shall be furnished per bid site plans at specified points of connection (POC) nominally 6' from the building line.
9. General contractor shall furnish and install final grading, landscaping and sidewalks.

M. Connection to Utilities

1. The restroom subcontractor will furnish Electrical, Water, and Sewer at the proper POINT OF CONNECTION AND AT THE PROPER ELEVATION BELOW GRADE, for this project. Restroom subcontractor shall provide final hook up of the water from building to POC; sewer hookup to POC; and electrical sleeve from building panel to POC only. Final utility connections shall be by General Contractor or others. General contractor shall flush the water lines thoroughly before making final water connection to the building.

N. Concrete Slab, Required Independent Testing Laboratory Certification:

1. The prefabricated building slab special concrete technology claims to be water and urine resistant for life due to special additive technology. The building subcontractor must furnish a test certification of compliance from a national independent testing laboratory to support the claim for absorption resistance. The written report must state the concrete compressive strength (minimum of 7,000 PSI) and absorption resistance (not greater than 3%) per ASTM standard #C642 and #C39 respectively. Since this non-absorbency capability is so significant, the design/build subcontractor must provide a general certification of compliance with the above standards.

O. Prefabricated Restroom Building:

1. The City of Greenfield has evaluated several prefabricated restroom building subcontractors. This bid requires such a building be used in lieu of site built

traditional construction because of the unique built-in advantages guaranteed by the design/build firm. This technology includes many new innovations such as non-absorbent concrete; anti-microbial components to reduce health risks; built in vandal resistance design; lowered maintenance and long term warranties that reduce owner risk for failure. The specifications below are written around this new technology.

P. Mat Engineered Concrete Building Slab/Foundation:

1. The mat engineered 8" thick slab/foundation shall be engineered and constructed to withstand the transportation weight of the building without cracking and to resist absorption from any liquids deposited on the surface. The concrete slab shall be constructed inside a steel angle curb, reinforced with dual mats (tension and compression,) and poured with a custom concrete formula with special admixtures to create a finished slab that is water proof for life.
2. Perimeter Steel Curb: 5/16" 50,000 kip steel 6" X 6" welded continuous angle.
3. Rebar Steel Mat: Two layers of 40,000 tensile steel rebar in varying sizes per engineers requirements, including a perimeter structural continuous grade beam design inside the exterior steel angle and at any other location deemed by the engineer of record as required for the use intended. In coastal locations or when required for corrosion resistance rebar shall be epoxy coated or fiberglass to resist permanent corrosion. Rebar mats shall be wire tied to code with a minimum of three turns of the wire and overlaps shall be minimum of 15 diameters for any connection.
4. All slab openings shall be surrounded with two layers of steel collars as required by the engineer of record to stop corner cracking and to reinforce the openings for lifting.
5. 1" thick by 3" minimum length threaded nuts shall be welded to the steel perimeter frame with continuous 1/4" fillet welds. Nuts shall be welded to common steel plates per the engineer of records design and attached to the interior steel rebar structural mats.
6. The engineer of record shall provide lifting locations with sufficient reinforcement to allow the safe lifting of the entire designed weight of the structure with dual 1" steel bolts and washers at each lifting location. The number of lifting locations with each location fitted with removable 3/4" 8" X 8" 50,000 tensile strength steel angles shall be determined by the engineer of record.
7. The slab shall be poured over a 1" thick steel plate table. The concrete mix design shall not exceed a 3" slump and shall be stinger vibrated for maximum consolidation. All floors shall slope to any floor drains within each room and if no floor drain is present the floor should not slope. The surface shall be a very light broom that should meet a coefficient of friction on the surface of .06. Birdbaths shall be cause for rejection.
8. The steel perimeter angle will remain below the concrete surface by nominal two inches to prevent corrosion. After the site concrete sidewalks are poured, the joint shall be full flow sealed with self-leveling grey urethane caulk to prevent penetration of water into the joint.
9. The building shall be designed for future relocation and shall provide protection for the lifting openings in the mat slab so that the threaded openings will be available for future use if needed.
10. The building system shall be designed for placement on a general contractor site prepared class 2 building pad/and or footings as required by code, per the bid drawings, suitable for 1500 pounds soil bearing capacity minimum. Any soils

survey (if necessary) shall be by owner or engineer of record.

Q. Permits and Fees

1. All required local building permits and fees shall be by General Contractor.

R. Exterior & Interior Masonry Block Walls

2. The exterior walls shall be 4" thickness per State of California codes or engineering for wind and seismic. The interior walls shall be 4" block to nominally 7'-4" above finished floor and framed with applicable required finishes above for pony and gable walls. A structural steel tubular .188 wall cap beam shall be welded to 5/16" 40,000 kip steel plate embeds, at intervals per the engineer of record, within the masonry wall.
3. The 8" mat engineered concrete slab shall be cured a minimum of 7 days. Holes for vertical dowels shall be drilled into the mat engineered slab avoiding any grade beams or other structural reinforcement. Once the holes are drilled, blow out the remaining material and using two part structural epoxy, wet set the #3 or #4 vertical rebar (as specified on the engineering calculations into holes drilled to the depth per the engineer of record requirements. Each rebar shall be held vertical to allow equal epoxy support to each dowel during the drying period. Engineering calculations require that rebar shall be installed in each concrete block center void or every block hole. The engineered uplift on each rebar shall be sufficient to restrain any load imposed on the masonry block wall for vertical rebar pull out from the concrete mat engineered slab.
4. The block walls shall be nominal 8" x 16" CMU. The building corners shall have special corner return block that matches the exterior finish and creates a uniform appearance. All 4" CMU shall be custom fabricated with an enlarged interior hole for placement of the grout and vertical rebar.

S. Roof System

1. The roof structure shall be 2" x 6" wood rafters at 24" on center with 5/8" OSB sheathing and 40 lb felt paper with Owens Corning Composition Shingles, color to be selected by Owner. The rake and fascia shall be 14 gauge formed steel painted in a color selected by Owner.
2. Roof shall be designed per plans to reduce vandals climbing on roof and to obtain proper ventilation size openings for the gables to provide fan-free ventilation. The roof design shall exceed compliance with local code at 20 PSF live load and wind load "C".
3. The restroom ventilation screens (described in a following section) shall be attached to the truss frames with vandal-resistant fasteners.
4. Roof color shall be per bid drawings.

T. Exterior Wall Finish, Masonry and Gable

1. The building exterior finish shall be split face 8" x 16" CMU to wall height per the exterior elevations in the bid plans. The exterior CMU shall be sealed with two 4 mil layers of block filler and painted with two, 4 mil layers of industrial high solids grade enamel, color selected by Owner. Pony and gable walls, shall be wood-framed, sheared, and surfaced with fiber cement board, stucco-pattern and painted with industrial high solids enamel, color per bid drawings.

U. Interior Wall Finish:

1. Interior precision CMU block masonry walls shall be smoothed to a pebble grain

finish with 2-4 mil layers of industrial grade block filler and painted with two additional 4 mil layers of industrial high solids industrial grade enamel. Pony and gable walls, shall be wood-framed, sheared, and surfaced with fiber cement board, stucco-pattern and painted with industrial high solids enamel. Interior of utility chase shall be the natural block finish (grey). Colors shall be per bid drawings.

V. Natural Ventilation System

1. Shall be woven ¼" X 1.5" X 1.5", 304T, stainless steel woven crimp-stop wire mesh set into stainless steel welded frames and fastened to the steel frame with vandal-resistant screws. Pre-shipment building protection includes plywood shipping panels fastened to the stainless steel ventilation screens.

W. Doors and Gates

1. All entry doors shall be 7'-0" high, custom fabricated, 14 gauge steel, reinforced with concealed 14 gauge steel ribs welded at 6" intervals on each face, reinforced with a welded plate for door closer mounting. Doors shall be hung on a single continuous, 1 million cycle, aluminum gear hinge with stainless steel vandal resistant screws at nominal 4" on center. The doors shall weigh nominally 176 lbs each for a 36" X 84" door. Custom fabricated 14 gauge steel door jambs with 4" steel heads shall be welded to the steel cap beam and be solid filled with 3000 psi masonry grout mix. Stainless steel vandal resistant fasteners shall be used on all hardware. Doors shall be primed and painted with 2 coats of semi-gloss, industrial enamel, color per bid drawings.
2. All entry doors shall have a 1/8" thick plate stainless steel "Z-shaped" anti-microbial pull handles with integral latch guard and Schlage B-600 series commercial series dead bolts.
3. The door closer (restroom entry doors only) shall be "LCN" heavy duty #4210 Series, fastened to a structural reinforced door plate per door manufacturer design. Stainless steel vandal resistant fasteners shall be used on all hardware.
4. Louvers and kick plates shall be installed at restroom entry doors per the bid drawings and specification Sections 08100 and 087100.
5. Door stops shall be installed at all doors & weatherstripping at Storage & Utility Chase Doors per bid drawings & specification Section 087100 Door Hardware.

X. Natural Lighting by Tubular Daylighting Device

1. Provide and install tubular daylighting devices per bid drawings and specification Section 08625 – TUBULAR DAYLIGHTING DEVICE

Y. Specialties

1. All specialty washroom equipment shall be commercial grade stainless steel fastened securely to walls with vandal resistant stainless steel screws to avoid removal by vandals as follows:
2. Toilet paper holder shall be a Royce Rolls TP-2, covered, two-roll, 18 gauge stainless steel with lock. Toilet paper holders shall be attached to block walls with 4 epoxy bedded vandal resistant stainless steel fasteners.
3. Stainless steel grab bars to code shall be 1 ¼" minimum exposed fastener vandal resistant design and installed at each accessible water closet.
4. Cast Aluminum T-24 compliant door signs shall be recessed into block surface flush with masonry exterior. Signs shall have raised pointed Braille tips and shall be blind secured with epoxy adhesive and stainless steel fasteners.
5. Hand dryers shall be Dyson Airblade V, nickel finish, mounted adjacent to

lavatories.

Z. Plumbing:

1. Building shall be fully compliant with all current codes:
 - a) All applicable State of California Building Codes. Latest edition applicable.
 - b) California Green Building Standards Code
2. GENERAL: All components and fabrications shall be designed to reduce life cycle maintenance, be compatible with current maintenance spare parts, and shall be listed in a spare parts/maintenance manual (two copies) delivered in utility chase of building.
3. WATER PIPING: Shall be commercial grade PEX per code above grade and type K below grade. All water piping shall be designed and constructed with high and low point drain fittings. All piping shall be mounted on Uni-strut wall brackets with neoprene isolators, to code.
4. WATER PRESSURE GAUGE/VALVE COMBO: shall be three commercial grade industrial water pressure gauges, isolation ball valves, 150 PSI pressure regulator with wye strainer, 10 micron water filter with clear canister and check valve.
5. PLUMBING FAUCETS, ISOLATION VALVES AND ACTUATORS: All fixtures except those with flush valves shall be isolated with ball valves for each fixture, concealed antimicrobial impregnated flush handle valves, and metered push-button lavatory faucets.
6. DWV PIPING: DWV piping shall be concealed behind the wall. DWV piping shall be PVC DWV, solvent welded, for all concealed piping. A cast iron no hub DWV vent pipe with a cast iron roof mounted vandal cap vent shall be required, through the roof.
7. REMOVABLE PIPE TRAPS: all floor drain, sink drain, and waste traps shall be removable for maintenance. Floor drains shall be trapped behind the wall in the utility chase using a combination waste and vent system. Floor drains shall be increased two pipe sizes over standard to allow code use. Trap primers for restroom floor drains shall not be used as maintenance is hose-down. All surface mounted utility chase piping shall be mounted on Uni-strut with plastic isolators, to code. Sink drain traps shall be concealed behind the utility chase walls where maintenance staff can access all plumbing.
8. PLUMBING FIXTURES: Plumbing fixtures shall be 14 gauge stainless steel manufactured by Acorn. Toilets shall be wall hung, rear discharge, with concealed anti-microbial, lever-type, flush valves. Toilet seats shall be black solid core plastic, non-flammable construction with continuous stainless steel concealed self-checking hinges. Lavatories shall have concealed remote traps behind the mechanical wall. Schedule of fixtures:
 - a. Water Closets: Acorn Penal-Ware, 1675-W-1-HET-FVBO-9-ADA-PFS
 - b. Water Closet Flush Valve: Zurn Z6143AV-WS1-BG-7L
 - c. Urinal: Acorn Penal Ware: Acorn 1709HEU-1-0.5 GPF-FVBO
 - d. Urinal Flush Valve: Zurn Z6195AV-WS1-BG-7L
 - e. Lavatories: Elkay 15"x15" Stainless Steel model mounted in stainless steel counter
9. FLOOR GRATES: Removable 350 lbs per square foot, pultruded fiberglass, non-skid floor grates shall be installed over every opening in the utility chase for OSHA compliance.
10. HOSE BIB: There shall be one Woodford 24B hose bib provided in the utility chase.
11. HI-LO DRINKING FOUNTAIN: Shall be an Acorn Aqua, 14 gauge stainless steel,

hi-lo, ADA accessible, drinking fountain shall be installed per plans and manufacturers recommendations.

AA. Electrical:

1. GENERAL: Electrical system and components shall be commercial grade or better and piping conduits shall be installed on commercial Uni-strut wall hangers. Interior electrical lighting fixtures in public areas shall provide lifetime manufacturer's warranty.
2. PANEL/WIRING: One 100 amp panel, Square "D" QO series, shall be mounted in the utility chase in the restroom building. All breakers shall be snap-in type, minimum 10,000 A.I.C. RMS (Sym) at 120/240 vac. Wiring shall be stranded copper wire #12 min in EMT piping with screw fittings.
3. PIPING: All piping in the utility chase shall be surface mounted to the masonry block walls with minimum of 2" fastener penetration. EMT conduit shall be compression type. Main panel shall maintain a 30" X 36" safety code required clear space, floor to 6' above finished floor.
4. EXTERIOR LIGHTING: Luminaire SWP1212, 28 watt LED, vandal resistant, high-impact polycarbonate lens fixtures shall be installed per plans. (one in front and rear of each building).
5. INTERIOR LIGHTING: Luminaire YWP1212, 28 watt LED vandal resistant high-impact polycarbonate lens fixtures shall be installed in the restrooms per plans (2 in each restroom). The utility chase shall have one (1), 4' single-tube LED fixture, suitable for wet locations, with a single switch at door entry.
6. LIGHTING CONTROL: All interior restroom lighting shall be controlled by a time clock mounted in the utility chase and 2 bypass switches (one for interior lighting and one for exterior lighting), so maintenance staff can check operation during daylight hours. A single photo cell, roof mounted, and shall control all exterior lighting.
7. ELECTRICAL OUTLETS: One (1) commercial spec grade duplex outlet shall be provided in the utility chase adjacent to the panel.
8. HAND DRYER: Shall be Dyson Airblade V, nickel finish, mounted adjacent to lavatories.
9. WATER HEATER (Restroom Lavatories): Shall be a Stiebel DHC-E-12 tankless located in the utility chase.

BB. Shipping Protection

The building, while traveling over roads to the destination may encounter inclement weather or road grime that could require substantial cleaning when it arrives on site. The building shall be shrink-wrapped before transportation and sufficiently strong to arrive at the owner site intact for exterior finish protection. Materials removed on site shall be disposed of and recycled by restroom building install staff.

CC. Certifications

Building shall be certified in compliance with the plan approval by the State of California, Department of Housing and Community Development and shall be delivered with an applied insignia in compliance with all State regulations. The local building authority shall provide site inspections for the underground mechanical piping and final connections, footings (if required), and access issues outside the restroom footprint. Restroom building subcontractor shall also furnish 5-year warranty, certifications for the concrete slab specification compliance, and maintenance manuals for the building and components.

Payment for **RESTROOM** shall be paid at the **LUMP SUM** price in the Bid Schedule. Upon award of the contract, the contractor shall submit a schedule of four incremental payments to be paid for staged completion of the restroom. The final payment shall not be less than 25% of the **LUMP SUM** price bid. Incremental payments will be reviewed and approved by the restroom Architect or the City Representative. Utility connections within 6' of the building will be included in the lump sum price bid.

Payment for shall be paid for on a LUMP SUM basis. **The LUMP SUM** payment for **RESTROOM** shall include all costs for all work and materials required to complete the restroom and all its appurtenant facilities, including the drinking fountain. The Price paid shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals as specified in the Standard Specifications, in the special provisions, and as indicated on the plans.

END OF SECTION

BID ITEM 11- STABILIZED DECOMPOSED GRANITE PAVING

SCOPE

Decomposed granite paving is the primary circulation path material for the park. It also includes many of the picnic areas, and unplanted areas around the basketball court.

MATERIALS

STABILIZED DECOMPOSED GRANITE PAVING shall be local within 50 miles of Greenfield and comparable to "Gail's Gold" as produced by Gail Materials, Corona, CA (phone 951-279-1095; fax 951-279-0956; www.gailmaterials.net). A sample of the proposed material shall be approved by the City Representative. The stabilized decomposed granite mix shall consist of crushed-screened 2mm minus decomposed granite. The mix shall have a combined salt and clay content of 18-22%. All decomposed granite on the project is to be stabilized to the satisfaction of the City's Representative.

The stabilized decomposed granite shall be pre-blended with 100% organic binder as provided by the manufacturer. The binder shall be blended using a pug mill with a weight belt feeder to insure a proper weight ratio of 12 pounds of binder per ton of decomposed granite. The decomposed granite mix shall

be blended using a certified blender pre-approved by the manufacturer. The decomposed granite mix shall not be blended by way of a bucket loader.

METHODS

For installation instructions, refer to manufacturer's instructions, the project Plans and these specifications.

Prior to delivery of the decomposed granite material, the subgrade shall be shaped and compacted to conform to the typical sections and to the lines and grades shown on the plans or established by the City Representative.

Once the subgrade preparation has been completed and approved, the following placement shall be provided by the Contractor:

- (1) Backfill over the compacted base and subgrade with granite material.
- (2) Once the material is in place, the Contractor shall complete the following compaction operations:

- (a) Compact areas with a mechanical roller or plate vibrator sufficiently large to achieve 95% relative compaction. Material to be installed in separate lifts no greater than 1 1/2" in depth.

- (b) Compacted granite aggregate shall be 3/16" (+/- 1/16") below the sidewalk pedestrian surface. It shall be sloped at no greater than 3% gradient. Measurements shall be taken at the beginning and end of the planting and irrigation maintenance period. The Contractor shall ensure that all compacted aggregate areas shall drain to eliminate the possibility of standing water.

MEASUREMENT AND PAYMENT

The contract **LUMP SUM** price paid for **STABILIZED DECOMPOSED GRANITE PAVING** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, including aggregate base, and for doing all the work involved in constructing **STABILIZED DECOMPOSED GRANITE PAVING**, complete in place, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the City Representative. The price does not include the edging or header that defines each side of the path.

BID ITEM 12- ALUMINUM EDGING FOR DECOMPOSED GRANITE & AC PAVING

SCOPE

The decomposed granite paving shall be contained by permaloc asphalt edge aluminum edging as illustrated on the plans and specified herein

WARRANTY

- A. 15-year limited material warranty for asphalt restraint edging from manufacturing defects in workmanship or material.

MATERIALS

- A. Product: Permaloc AsphaltEdge or approved equal, with 0.210 inch (5.33 mm) thick exposed top lip x 4" high x 8 or 16' feet long, extruded aluminum, alloy 6005, T-5 hardness as manufactured by Permaloc Corporation, Holland MI 49424, telephone (800) 356-9660 or (616) 399-9600. Horizontal base to have upward facing angle profile designed to integrate decomposed granite and asphalt surfaces for straight-line and curvilinear applications. Section shall have holes in base spaced 4 inches apart along its length to receive anchors.
- B. Connection Method: Section ends shall splice together with aluminum sliding connector.
- C. Anchors: 3/8 inch x 10 inches bright spiral steel spike, 3/16 inch x 1-1/2 inches (4.8 mm x 38 mm) or longer Ardox concrete nail, or drive pin fastener equal to Hilti DX 40 powder actuated pin or Ramset Trakfast Automatic Fastening System pin.
- D. Finish: Natural Mill Aluminum

EXECUTION

Preparation of Base for Asphalt Pavement: Remove excess soils and unstable subbase materials. Compact subgrade to 95% proctor density test.

METHODS

- A. Base Installation:
 - 1. Extend base at least 6 inches (152 mm) beyond edge of restraint edging.
 - 2. Level base & compact base.
- B. Edging Installation:
 - 3. Install edging leaving 3/8" (9.5 mm) between sections for expansion.
 - 4. Drive spikes through edging holes in base of asphalt restraint edging at spaces for following applications:
 - A. Anchor each section end with anchor.
 - B. Aggregate Base: Spiral steel spikes at 8 inches (102 mm) to 12 inches (305 mm) on center.
 - C. Softer or Thinner Asphalt Base: 3/8 inch x 10 inches (9.5 mm x 254 mm) spiral steel spikes at 4 inches (102 mm) to 12 inches (305 mm) on center spacing.
 - 5. Securely connect sections in accordance with manufacturer's instructions. Provide additional anchors at closer spacing as necessary to firmly secure edging for permanent intended use.
- C. Pavement Installation:
 - 1. If asphalt installation is over restraint edging, avoid excessive

- asphalt temperatures to minimize aluminum expansion.
2. Lay asphalt pavement adjacent to and approximately ½ inch (12.7 mm) over top of restraint edging, depending on expected compaction results. Then, compact first pass with desired equipment within 6 inches (152 mm) of restraint edging. "Pinch roll" to create a hard joint. Subsequent passes may be directly against or over top of edging to ensure complete compaction of asphalt pavement.
 3. Compact decomposed granite surface to 1/8" above restraint edging
 4. Backfill side of edging on turf side and compact backfill material along edging to provide top of edging at 3/4" inch (13 mm) above finish grade on turf side.
 5. Where aluminum abuts concrete, the face of the edging shall match the face of the concrete on the travel path side.

MEASUREMENT AND PAYMENT

ALUMINUM EDGING shall be measured and paid for at the contract **LINEAR FOOT UNIT** price bid for installed, approved edging. The contract **Unit** price paid for **ALUMINUM EDGING** shall represent full compensation the installation of all **ALUMINUM EDGING**, including all labor, equipment, and materials necessary to perform the work per the plans and specifications

CAST IN PLACE CONCRETE STRUCTURES

Bid items **13-19** are **CAST IN PLACE CONCRETE STRUCTURES** and shall be placed as shown on the plans and in conformance with these special provisions. Bid Items 17 and 18 shall adhere to these specifications and include distinct and additional specifications as detailed in the scope, materials and methods described in Bid Items 17 and 18.

SCOPE

Work includes, but is not necessarily limited to: Concrete footings and structural concrete, concrete slabs on grade (Not including 1) amphitheater 2) ROW/On-site improvements, 3) water play concrete slab), forms, reinforcement, vapor barriers, finishing, curing, aggregate base and other work incidental thereto. The specification does not include the restroom concrete or structural concrete for the climbing wall or faux rock structures.

MATERIALS

Concrete structures shall be portland cement concrete (4 inch thick unless otherwise specified) constructed on finished subgrade to the lines, grades, joints and dimensions as shown on the plans in compliance with APWA Standard Plan 112-2,"Curb and Sidewalk Joints" as shown per project plans and details and shall conform to the requirements of SSPWC Sections 201-1,"Portland Cement Concrete", 201-2,"Reinforcement for Concrete", 201-

3, "Expansion Joint Filler and Joint Sealants". Concrete used shall be 520-C-2500 unless noted otherwise.

METHODS

Concrete structures shall comply with the construction methods set forth in 303-7, "Colored Concrete" per project plans. Color application shall be per method "B" integral color. Sandblasting shall be of a medium to heavy texture. Contractor to provide sandblasting sample for approval by the City engineer and the sample shall remain on site until all sandblasting is complete. Concrete un natural gray, uncolored concrete unless otherwise specified.

Included is the finishing of subgrade which shall be compacted to 90% relative compaction as determined by ASTM D-1557.

The marking and grooving shall be cut 2 inches deep with a pointed trowel before finishing 1/4" deep with a double edge grooving tool to insure a weakened plane in the concrete walks and flatwork.

Contractor shall conform earth and landscaping areas to abut finished grade of proposed concrete sidewalk as illustrated in the plan details and that miscellaneous work shall be considered part of this bid item and no additional payment shall be made.

APPLICATION OF SEALER:

Seal exposed exterior concrete with job-mixed concrete penetrating sealer spray applied in two coats, the first coat at the rate of approximately 300 square feet per gallon and the second coat at the rate of approximately 450 square feet per gallon.

MEASUREMENT AND PAYMENT

Payment for **BID ITEMS 13 through 19 shall be made on a LUMP SUM basis.** The Price paid for **BID ITEMS 12 - 18** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals as specified in the Standard Specifications, in the special provisions, and as indicated on the plans.

The LUMP SUM payment, shall include all costs for excavation and backfill, sub grade preparation, aggregate base, forming, concrete, reinforcement, scoring, finishing, curing and all other work and materials required to provide the structure complete and in place. The Price paid shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals as specified in the Standard Specifications, in the special provisions, and as indicated on the plans.

BID ITEM 13 – 5" THICK CONCRETE MAINTENANCE DRIVE

BID ITEM 14 - 3 ½" THICK CONCRETE FLATWORK

BID ITEM 15 - CONCRETE STEPS

BID ITEM 16 - CONCRETE HEADER FOR WOOD FIBER PLAY SURFACE

BID ITEM 17 - CONCRETE HEADER FOR SAND PLAY AREA

BID ITEM 18- CONCRETE ENTRY MONUMENT WITH FLAGPOLE, LETTERING

MEASUREMENT AND PAYMENT

Payment for the board formed concrete entry monument with flagpole and park signage shall include all costs for excavation and backfill, sub grade preparation, forming, concrete, reinforcement, finishing, curing and all other work and materials required to provide the structure complete and in place. The Lump Sum Price paid shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals as specified in the Standard Specifications, in the special provisions, and as indicated on the plans.

Pole Materials & Methods

20' brushed aluminum pole 100 mph+ rated flagged wind speed with internal stainless steel halyard and rotating truck. Shall include galvanized steel foundation sleeve M winch with removable handle. Include 3'x 5' top quality American Flag.

Install per manufacturer's recommendations.

BID ITEM 19 - AMPHITHEATER

SCOPE

The Amphitheater bid item consists of concrete flatwork and steps , a single concrete masonry unit seat wall, and embedded electrical outlets. If the shade structure add alternate is included in the contract, it shall be the responsibility of the concrete contractor to coordinate with the shade structure manufacturer, and to approve the location of the shade structure posts, in the presence of the City Representative, prior to stage construction.

MEASUREMENT AND PAYMENT

The contract **LUMP SUM** price paid for **AMPHITHEATER** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, including aggregate base, handrails, and for doing all the work involved in constructing the **AMPHITHEATER**, complete in place, as shown

on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the City Representative.

CONCRETE MASONRY UNIT CONSTRUCTION

Bids item 19 and 20 consist of concrete masonry unit block construction and other appurtenant structures such as concrete caps. The barbeque wall structure shall be placed as shown on the plans and in conformance with these special provisions. The concrete masonry unit bar-b-que wall with concrete countertop is the only CMU item in the base contract bid, but there are two add alternate bid items (Masonry wall rom play area, to and under Play Fort and split face Block Bench) for which these specification apply if they are included in the contract.

SCOPE

1.01 Description of Work:

This work includes, all unit masonry work, including all reinforcing steel, all accessories, mortar, and grout and aggregate base as shown on the drawings and specified herein.

1.03 Quality Assurance:

A. Labor: For the actual cutting and placing of concrete masonry units, use only skilled journeyman masons who are thoroughly experienced with the materials and methods specified. All work shall be performed in accordance with the CCMMA manual.

1.04 Submittals:

A. Plant Certification: Prior to delivery of concrete unit masonry to the job site, submit a letter from the manufacturer of the concrete masonry units certifying that all concrete masonry units delivered to the job site are in conformance with the provisions of these specifications.

B. Aggregates: Submit certification that coarse and fine aggregates for grout mix are in conformance with the respective **ASTM** designation. Certification shall include a sieve analysis for that particular gradation of aggregate selected for use. Certification shall accompany the mix proportion submittal.

- C. Grout Mix Proportions: Submit batch plant grout mix proportions for review. Mix proportions shall include, but not be limited to, aggregate sizes by percentage, water, design slumps, and the amount of admixtures, if any, to be added.

1.05 Product Handling:

- A. Protection: Use all means necessary to protect concrete masonry materials before, during, and after installation and to protect the installed work and materials of all other trades. Prevent increase of water content in concrete masonry units from rain and other sources during shipping, storage and construction prior to grouting.
- B. Delivery: Immediately after delivery to the site, masonry units shall be stacked under coverings or otherwise protected from weather exposure and from soil contact. Care shall be exercised in handling to avoid chipping and breaking. Damaged blocks will not be permitted. Units shall be stored on pallets or temporary wood floors off the ground and out of the way of other trades.
- C. Replacements: In the event of damage or excessive water absorption, immediately make all repairs and replacements necessary to the approval of the Landscape Architect.

MATERIALS

2.01 Materials:

- A. General: Concrete masonry units shall conform to **ASTM C - 90**, normal or medium weight load bearing units, Type I, Grade N, of the sizes indicated. Units shall be steam cured, a minimum of 28-days-old when delivered to site.
- B. Shrinkage, Absorption, and Water Content: Maximum linear shrinkage of units shall not exceed 0.06 of 1 % from the saturated to oven-dry condition. Water absorption shall not exceed fifteen (15#) pounds per cubic foot. Water content shall not exceed 40% of the fully saturated content of the unit.
- C. Nominal Size and Type: 8"x8"x16" Split-Face & precision Units, unless otherwise noted on the plans, in locations per drawings, with bond beam units as required for horizontal reinforcement. Open-end units shall be permitted for cells containing vertical reinforcement.

2.02 Mortar Mixes:

- A. General: All mortar shall be per **ASTM C - 270**, Type S, color shall match

masonry units, use integral color at plant mixing. Compressive strength at seven (7) days shall be 1500 psi; compressive strength at twenty-eight (28) days shall be 1,800 psi.

B. Cement: Portland cement, Type II, low alkali, conforming to **ASTM C - 150**. One brand of cement shall be used throughout the work. Cement shall have been used for at least two (2) years with the proposed aggregate without detrimental reaction.

C. Hydrated Lime: Hydrated lime conforming to the requirements of **ASTM C -207**, Type S, containing 85% by weight of calcium oxide.

D. Fine Aggregates: Free of deleterious substances and conforming to the requirements of **ASTM C - 144**.

E. Mixing: Mortar shall be prepared by the following proportions By volume of one (1) part Portland Cement to three (3) parts sand to one quarter (1/4) part lime. Mix water, sand, and cement for two (2) minutes; then add lime. Mix for ten (10) additional minutes. Mix to maintain a slump of from 2" inches to 3" inches. A continuous mortar mixer will not be permitted. Do not mix more mortar than can be used in thirty (30) minutes. Retempering, of mixture will not be allowed.

2.03 Grout Mixes:

A. General: Strength at seven (7) days shall be 1400 psi; strength at twenty-eight (28) days shall be 2000 psi.

B. Cement: Portland cement, Type II, low alkali, shall conform to **ASTM C - 150** or a blended cement, Type IP, conforming to **ASTM C - 595**. The Pozzolan constituent shall not exceed 20%, by weight, of the blended cement and alkali content shall not exceed that allowed for Type II, low alkali, Portland cement.

One brand of cement shall be used throughout the work. Cement shall have been used for at least two (2) years with the proposed aggregate without detrimental reaction.

C. Aggregates: Coarse and fine aggregate shall conform to **ASTM C - 404**. Aggregate size and blend as determined by the mix proportions.

D. Admixture: Sika product GROUT AID TYPE 11, or approved equal.

E. Slump: The maximum allowable grout slump shall not exceed that specified by the approved grout mix proportions nor nine (9) inch maximum.

F. Mixing: Use transit-mixed grout complying with **ASTM C - 94**. Transit-mixed

grout shall be mixed for a period of not less than ten (10) minutes and at least three (3) minutes of the mixing period shall be immediately prior to discharging of the job. The introduction of additional water after initial mixing will not be permitted.

G. Finish: Split-Face, Natural Buff Color or as selected by project manager.

2.04 Reinforcing Steel:

Refer to the plans.

Water:

A. Fresh, clean and potable, and free from such amount of mineral and organic substances as would adversely affect the hardening of cement mortar or grout.

METHODS

3.01 Surface Conditions:

A. 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 commence. Carefully coordinate with all other trades with the work of this Section.

B. In the event of discrepancy, immediately notify the Landscape Architect. Do not proceed with installation in areas of discrepancy until all such discrepancies have been completely resolved.

3.02 Installation:

A. General: Lay up all walls in common bond, plumb, level, and true to the lines and dimensions indicated on the drawings. All cells shall be filled solid with grout. Layup with exterior face in the true plane. Do not use chipped or broken units; if any such units are discovered in the finished wall, they shall be immediately removed and replaced with new units.

B. Dampening: Dampening or wetting of units prior to installation is not permitted.

C. Placement: Place all units in mortar with full shoved bed and head joints. Mortar joints shall be struck flush to receive plaster where shown. Joints shall be struck concave on exposed split face block. Align all vertical cells to maintain a clear, unobstructed system flues, with a minimum area of 2"x3". Hold racking to an absolute minimum. Tothing is not permitted. No part of any masonry shall be erected 6'-0" higher than adjoining portions. Fraction parts of masonry units shall not be used where the work can be completed using whole units. The chinking of

interstices with fragments will not be allowed. Miter cut block at angled comers.

- D. Reinforcement: Install all reinforcement as indicated on the Drawings. Center vertical reinforcement in the wall. Maintain minimum **3** inch clearance between bar and masonry. Hold firmly in place by ties, anchors, or other approved methods. Fully embed reinforcement in grout, not in mortar or mortar joints. Install all required metal accessories to ensure accurate alignment of steel during grout placement. **See structural drawings for other structural requirements.**
- E. Tooling: Tool all exposed joints, interior and exterior, in concave pattern. Brush off excess mortar from split face units before mortar beings to dry.

3.03 Grout Placement:

- A. General: Before placing grout, mixing and conveying equipment shall be well cleaned, space to be occupied by grout shall be thoroughly cleaned as required for the type of grouting operation selected. No grout shall be placed in any of work until all shoring has been completely constructed, all reinforcement has been secured in place, and all items to be built into masonry are in place.
- B. Records: The Contractor shall be responsible for checking transit mix shipping tags. Obtain copies of transit mix trip tickets and maintain on-site. Tickets shall be signed by a certified State of California Weighmaster. The following information shall be included on the tag:
 - 1. Date.
 - 2. Design mix number.
 - 3. Time of batching.
 - 4. Time of arrival at the site.
 - 5. Quantities of materials (including admixtures).
 - 6. Amount of water added at the site, if any.

Maintain a complete up-to-date record of all lifts made on the project, including the date, amount and location of grout placed.

- C. Workability: Grout shall be handled as rapidly as practicable from the mixer to the place of final deposit by methods which prevent the separation or loss of ingredients. It shall be deposited, as nearly as practicable, in its final position to avoid rehandling or flowing. Do not place retempered grout, grout that is partially hardened, or grout contaminated by form materials in the work.
- D. Weather Requirements: Grout shall not be mixed or placed when the atmospheric temperature is below forty (40N) degrees F. Concrete masonry units which grout will contact must be completely free of frost. The grout and masonry must be kept at a temperature of not less than

fifty (50N) degrees Fahrenheit for not less than seventy-two (72) hours after grout placement.

- E. Vibration: All grout shall be re-consolidated by use of a flexible cable vibrator. Maintain on-site, in working condition, a standby vibrator. Grout shall be vibrated again after excess moisture has been absorbed by the concrete masonry units and prior to loss of plasticity. Excessive vibration, in order to mobilize the grout through segregation, will constitute a rejection of the work.
- F. Method or Placement: Contractor shall use low lift grouting procedures to complete all masonry work.
- G. Low Lift Grouting: Concrete masonry units shall be laid to a height not exceeding the grout lift. Low lift grouting shall not exceed 4'-0" in height. Terminate lift **2** inch from top of concrete masonry units when additional courses are to be added.

Place grout only after mortar has attained enough strength to contain the grouts' fluid pressure.

- H. Tolerances: Maximum variation of installed adjacent units is 1/16" inch. Maximum variation from horizontal and vertical building lines is **3** inch. Any masonry work that is not installed as indicated, not true to intended alignment, not plumb and level where so intended, not true to line or grade or does not fully conform to these specifications will be deemed defective. If so directed by the Landscape Architect, the defective work shall be removed from the job site and replaced with masonry complying with requirements of the specifications.

3.04 Field Quality Control:

- A. Masonry Construction: Perform all masonry construction in the presence of the Special Inspector.

3.05 Cleaning-up:

- A. Upon completion of the work of this section, make a thorough inspection of all installed concrete unit masonry and verify that all units and all joints have been installed in accordance with the provisions of the Section. Make all necessary adjustments.
- B. Clean all surfaces of concrete unit masonry as required for proper application of the specified finishes. Use of acidic solution as a cleaning agent is not acceptable.

- C. Upon completion of all work of the Section, promptly remove from the job site all mortar droppings, broken units, debris arising from the work of the Section, masonry sample panel and all tools and equipment of this Section, leaving all areas in a neat and orderly condition to the approval of the Landscape Architect.

MEASUREMENT AND PAYMENT

CONCRETE MASONRY UNIT CONSTRUCTION - BID ITEM 20 shall be measured and paid for at the contract **LUMP SUM** price for each separate and distinct **BID ITEM**. The contract **LUMP SUM** price paid for the bid item shall represent full compensation for the **CONCRETE MASONRY UNIT CONSTRUCTION BID ITEM** including all labor, equipment, and materials necessary to perform the work per the plans and specifications. If Add-on Bid items are included in the construction, they shall be measured and paid for in a like manner

BID ITEM 20 - MASONRY BBQ WALL WITH CONCRETE COUNTERTOP

BID ITEM 21 - GALVANIZED STEEL HANDRAILS

GENERAL

1.1 SECTION INCLUDES

- A. Site built ADA-compliant handrails.

1.2 RELATED SECTIONS

- A. Section 05500 - Metal Fabrications: Associated metal supports.

1.3 REFERENCES

- A. Americans with Disabilities Act Accessibility Guidelines (ADA).
B. American National Standards Institute (ANSI) - A58.1 Minimum Design Loads in Buildings and Other Structures.
C. American National Standards Institute (ANSI) - A17.1 Accessible and Usable Buildings and Facilities.
D. American Society of Testing and Materials (ASTM) A47 - Standard Specification for Ferritic Malleable Iron Castings.
E. American Society of Testing and Materials (ASTM) A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
F. American Society of Testing and Materials (ASTM) A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
Preparation instructions and recommendations.

Installation methods.

- C. Shop Drawings: Drawings showing fabrication and installation of handrails and guardrails including plans, elevations, sections, details of components, anchor details, and attachment to adjoining units of work.

1.5 QUALITY ASSURANCE

A. Hand railing Structural Requirements:

1. Handrail and wall rail assemblies and attachments shall withstand a minimum concentrated load of 200 pounds (90719 g) applied horizontally or vertically down at any point on the top rail.
2. Handrail assemblies shall be designed to resist a load of 50 pounds per linear foot (0.73 kN/m) applied in any direction at the top and to transfer this load through the supports to the structure.

Do not proceed with remaining work until workmanship and installation are approved by Architect. Refinish mock-up area as required to produce acceptable work.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Materials to be delivered to the job site in good condition and adequately protected against damage as handrails are a finished product.
- B. Store products in manufacturer's unopened packaging until ready for installation.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Where handrails and railings are indicated to fit to other construction, check actual dimensions of other construction by accurate field measurements before fabrication; show recorded measurements on final shop drawings.

Where field measurements cannot be made without delaying the railing fabrication and delivery, obtain guaranteed dimensions in writing by the Contractor and proceed with fabrication of products to not delay fabrication, delivery and installation.

- B. Coordinate fabrication and delivery schedule of handrails with construction progress and sequence to avoid delay of railing installation.

PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Kee Safety, Inc., which is located at: 100 Stradtman St. ; 05521-2 Buffalo, NY 14206; Toll Free Tel: 800-851-5181; Tel: 716-896-4949; Fax: 716-896-5696; Email: [request_info](#); Web:

www.keesafety.com/us. Or equal as approved by the City Representative.

B. Substitutions: As approved by the City Representative

2.2 SYSTEMS

A. Product: Kee Access ADA Railing System as manufactured by Kee Safety Inc., or equal.

1. Railings shall provide a smooth contiguous gripping surface throughout the entire length of the railing.
2. The system shall not require drilling, welding or threading.

B. Handrails: Provide pipe, fittings, and accessories as indicated or required to match design indicated on the Drawings and these specifications.

1. Fittings: Cast iron.
2. Steel Pipe: Schedule 40 galvanized pipe.
3. Handrail Pipe Size: 1-1/4 inches (32 mm).

2.3 COMPONENTS

A. Fittings Material:

1. Galvanized Malleable Cast Iron: Kee Access structural pipe fittings, ASTM A447 with ASTM A153 galvanizing.

B. Base and Flange:

2. Socket Fittings.
3. Palm Fittings.
4. Wall Flange.
5. Cover Flange.

C. Fittings:

1. Upright Top Cap.
2. Wall Mounted Handrail Bracket.
3. End Post handrail Return.
4. Wall Mounted End Return.
5. Top Fix Rail Assembly.
6. Variable Angle Elbow.
7. 90 Degree Solid Elbow.
8. Handrail Bracket.
9. Twin Handrail Socket.
10. Twin Handrail Socket - Capped.
11. Handrail Connector - Internal Coupling.
12. Single handrail Socket.
13. Single handrail Socket - Capped.
14. Add-on Single Handrail Socket:
 - a. 1-1/4 inches (32 mm) inside diameter.
 - b. 1-1/2 inches (38 mm) inside diameter.

2.4 FINISH

A. Finish: Polyester factory applied spray coating.

B. Fasteners: Type 304 or 305 stainless steel.

2.5 FABRICATION

Shop assemble components in largest practical sizes for delivery to site.
Upright tops shall be plugged with weather resistant material.
Assemble components with joints tightly fitted and secured.
Accurately form components to suit installation.

EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Coordinate post setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as sleeves, concrete inserts, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete and masonry construction.
1. Coordinate delivery of anchorages to project site.
 2. Coordinate that blocking is in place for all mounting fasteners.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

Install in accordance with manufacturer's instructions.
Fit exposed connections accurately together to form tight joints. For all connections with Kee fittings, each set screw is to be tightened to 29 foot pounds (39 N-m) of torque.
Set handrails and accurately in location, alignment, and elevation, measured from established lines and levels.
Set posts plumb within a tolerance of 1/8 inch (3 mm).

3.4 PROTECTION

Protect installed products until completion of project.
Touch-up, repair or replace damaged products before Substantial Completion.

MEASUREMENT AND PAYMENT

The contract **LUMP SUM** price paid for the installation of **HANDRAILS** shall be paid for fully constructed **HANDRAILS** at each site location upon approval by the City Representative.

The **LUMP SUM** price paid shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing **HANDRAILS** complete in place at each location, as shown on the plans, as specified in the Standard Specifications and

these Special Provisions, and as directed by the City Representative. This bid item does not include amphitheater handrail payment.

BID ITEM 22 - WOOD PERGOLA

SCOPE

Construct a wood pergola along entry walk that parallels 3rd Street for 50 linear feet, as illustrated on the plans and according to these specification.

MATERIALS AND METHODS

Materials and methods shall be as specified in BID ITEM #10 – RESTROOMS, Rough Carpentry.

Finish wood with Thompson's Water sealer or equal to conform to Industry Standard ASTM D-4446 for waterproofing wood.

MEASUREMENT AND PAYMENT

The contract price paid for **PERGOLA** will be measured and paid at the **LUMP SUM** Price as indicated in the **BID SCHEDULE** and shall include full compensation for all work and materials required to complete the structure, including but not limited to concrete footings, hardware, wood and finishing.

BID ITEM 23 – SIGNAGE

SCOPE

This Park and street parking signage:

1. Playground area age identification
2. Accessibility signage
3. Park rules and hours of operation
4. Miscellaneous Signage per Civil Engineering sheets

MATERIALS

Signage (to be provided by the City) shall be mounted on 3" dia. Schedule 40 grade A or B canary yellow powder coated at factory poles with caps. Signage poles shall be 8' and set at a height as directed by the City Representative. Signs shall be provided by The City. The Bid quantity shall be 13 Signs.

**Park Signage – Not including Exercise Station, Doggie bag, or other signs
accompanying play equipment**

Purpose	Quantity	Description
Park Rules	1	Playground signs.com 18x24
2-5 Playground	1	Mounted top edge 5' above FG per Plan Detail
5-12 Playground	2	Mounted top edge 5' above FG per Plan Detail
Misc Informational Signs	9	KOTTLER METALPRODUCTS BENT PIPE SIGNAGE

Signs and poles shall be unmarked or scratched at the time of completion.

METHODS

Embed each post in 1.5 c.f. concrete collar. Secure signs to posts with 3 stainless steel clips on each vertical sign edge.

MEASUREMENT AND PAYMENT

The contract **UNIT** price paid for the installation of **EACH SIGN** shall be paid for upon installation approval of **EACH SIGN** as approved by the City Representative.

The unit price paid for **EACH SIGN** shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to install the sign frames and secure the signs, provided by the City and for doing all the work involved in constructing **EACH SIGN** complete in place at each location, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the City Representative.

AMENITIES AND APPURTENANCES

Bid items **24-31** shall be installed as shown on the plans and in conformance with these special provisions.

BAR-B-QUE

SCOPE

Install outdoor grills as designated on the drawings. They shall be installed with pedestals and secured as recommended by the manufacturer, illustrated on the plans and approved by the City Representative.

MATERIALS

Seven (7) Grills will be similar to Iron Mountain Forge model number 200-x "Deluxe Pedestal Grill". Materials and installation procedures shall be according to the manufacturer's recommendations.

One (1) Grill will be similar to Iron Mountain Forge model number 220-x "Deluxe Pedestal Grill". Materials and installation procedures shall be according to the manufacturer's recommendations.

TRASH/RECYCLE RECEPTACLES

SCOPE

Install trash and recycling receptacles in landscape areas as designated on the drawings and described in these specifications.

MATERIALS AND METHODS

Materials and installation procedures shall be according to the manufacturer's recommendations.

SEATS PREFABRICATED

SCOPE

Benches shall be installed with legs into concrete footings as recommended by the manufacturer, illustrated on the plans and approved by the City Representative.

MATERIALS

Benches shall be similar or equal to Green Valley Collection recycled bench model #GV303G. Materials and installation shall be according to the manufacturer's recommendations.

PICNIC TABLES

SCOPE

Picnic tables shall be installed and secured to the concrete as recommended by the manufacturer, illustrated on the plans and approved by the City Representative.

MATERIALS

Picnic tables shall be similar or equal to Jayhawk Plastics Inc. model #JAY-PB8XXGFPIC. Materials and installation procedures shall be according to the manufacturer's recommendations.

METHODS

The picnic tables shall have the same distance and alignment from one another in all locations. Facilities shall be placed so that they meet title 24 and ADA accessibility standards. After the flatwork surfaces are installed, the contractor shall chalk the outline location indicated on the plans for

installation for approval by the city representative. Upon the approval of the city representative the picnic tables can be installed.

EMERGENCY CALL BOX

SCOPE

One (1) Emergency call box shall be installed and secured as recommended by the manufacturer, illustrated on the and approved by the City Representative. The pedestal mounted call box shall be located adjacent to the restroom corner abutting the patio edge.

MATERIALS

Emergency call box: Code Blue, CB-1S free standing land line hard wired emergency call box. Materials and installation procedures shall be according to the manufacturer's recommendations.

METHODS

1. Coordinate with Telephone Company to provide new service to Park.
2. Provide (1) 2"CO, underground, from utility pole, as directed by telephone company, to the bathroom building.
3. Provide a small backboard or telephone terminal box inside bathroom structure, as directed by telephone company.
4. Provide required telephone cable (assume one cat5E), in 3/4" conduit, from backboard/terminal box to call box adjacent to bathroom building. Connect.

DOGGIE BAG POST AND RECEPTACLES AND SIGN

SCOPE

Dog waste receptacle shall be installed and secured as recommended by the manufacturer, illustrated on the plans and approved by the City Representative. Dog waste receptacle: dogipot, dogivalet item No. 1005-02, color forest green with key lock front access on galvanized telescoping steel pole

MATERIALS

Materials and installation procedures shall be according to the manufacturer's recommendations.

BIKE RACKS

SCOPE

Bike racks shall be installed and secured as recommended by the manufacturer, illustrated on the plans and approved by the City Representative. Bike racks shall be similar or equal to DERO Swerve, product #DER-SW-ING.

MATERIALS

Materials and installation procedures shall be according to the manufacturer's recommendations.

METHODS

The Bike racks shall have the same distance and alignment from one another in all locations. Facilities shall be placed so that they meet title 24 and ADA accessibility standards. After the flatwork surfaces are installed, the contractor shall chalk the outline location indicated on the plans for installation for approval by the city representative. Upon the approval of the city representative the bike racks can be installed.

MEASUREMENT AND PAYMENT

The contract price paid for **AMENITIES AND APPURTENANCES, (BID ITEMS 24-31** as listed below) will be measured and paid at the **UNIT PRICE (EACH)** as indicated in the **BID SCHEDULE** and shall include full compensation for each **UNIT** complete and in place. The **BID SCHEDULE UNIT PRICES** shall include full compensation for all finished accessories and all appurtenances required for a complete functioning amenity system and no additional compensation will be allowed therefore.

BID ITEM 24 – GROUP BARBEQUE

BID ITEM 25 – INDIVIDUAL BARBEQUE

BID ITEM 26 – TRASH/RECYCLE RECEPTACLES

BID ITEM 27 – BENCHES PREFABRICATED

BID ITEM 28– EMERGENCY CALL BOX

BID ITEM 29– DOGGIE BAG POSTS & RECEPTACLES AND SIGNS

BID ITEM 30 – PICNIC TABLES

BID ITEM 31 – BIKE RACKS

LANDSCAPE

BID ITEM 32- ROOT BARRIER

SCOPE

ROOT BARRIERS shall be installed as illustrated on the project plans, where trees are within 5'-0" of an adjacent concrete structure.

MATERIALS

Materials shall consist of .06 mil ASTM D638 polyethylene copolymer flexible root deflecting root barrier. Barrier shall have self-interlocking ribs and as manufactured by Century Root Barrier CR-PE 24-20 rolls or panels. Barriers shall have a 24" depth.

METHODS

Install all along back side of concrete paving or concrete header adjacent to DG paving with as few cuts or connections as possible. Connect ends to molded connection using polystyrene glue for water impermeability. Deflecting ribs shall face the root ball.

Install root barrier top edge ½" below the top of adjacent paving. Barrier top edge shall not be visible above decomposed granite or mulch surface. Installed barrier shall have no distortion and shall be approved by the City Representative prior to backfill. Connections shall be cut and installed to the one piece is cut in the rib valley and the abutting piece is cut along a ridge. See manufacturers recommended installation procedures for further installation details.

MEASUREMENT AND PAYMENT

The contract **LINEAR FOOT PRICE BID** for the installation of each **ROOT BARRIER** shall be paid for fully installed barriers. The linear foot price paid shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing **ROOT BARRIER** complete in place, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the City Representative.

Bid items **33-42** shall be installed as shown on the plans and in conformance with these special provisions. The turf area shall be filled and amended per these specifications. No ripping, soil preparation or amendments shall be filled into shrub planting areas. These tasks apply only to the turf area.

Bid Items 33-42 include:

- BID ITEM 33 – SOIL PREPARATION AND AMMENDMENTS**
- BID ITEM 34 – 15 GALLON TREE**
- BID ITEM 35 – 24" BOX TREE**
- BID ITEM 36 – 36" BOX TREE**

- BID ITEM 37 – 48” BOX TREE**
- BID ITEM 38 – 1 GALLON SHRUBS**
- BID ITEM 39 – 5 GALLON SHRUBS**
- BID ITEM 40 – 15 GALLON SHRUBS**
- BID ITEM 41 – HYDRO SEEDED MOWN TURF**
- BID ITEM 42 – 2” ORGANIC MULCH**

SCOPE, MATERIALS AND METHODS

GENERAL

This section sets forth the requirements for Landscape Improvements. Perform the work in accordance with Sections 212 – Landscape and Irrigation Materials and 308 – Landscape and Irrigation Installation of the SSPWC, latest edition, as modified and supplemented below.

1.1 WORK INCLUDED

- A. Gather 5 soil samples in locations designated by City Representative and coordinate soil testing after landscape area soil is in place.
- B. Complete finish grading, furnish and install all import soil necessary to replace over excavated material and for backfill required to complete the planting shown on the plans and details.
- C. Furnish and install all required backfill material, soil amendments and fertilizers in accordance with lab tested Agronomic soils analysis and as approved by the City Representative.
- D. Furnish all labor, material, equipment and services necessary to provide all landscape planting, complete, in place, as shown and specified.
- E. Furnish and install all planting accessories, tree stakes, ties, and guys.
- F. Guarantee and provide replacement as necessary, in accordance with Section 1.7 of these Landscape Planting and Maintenance provisions.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Irrigation System

1.3 PROTECTION OF WORK

The Contractor shall adequately protect the work, adjacent property and the public, and shall be responsible for any damage, injury and/or loss due to the construction of the landscape improvements. Damaged facilities shall be repaired within a reasonable amount of time at no additional cost to the City.

1.4 SUBMITTALS

Submittals shall be made in accordance with Section 2-5.3.3 Submittals

- A. Agronomic Soils Report. After completion of rough grading and prior to soil preparation, the Contractor shall provide the testing of planting soils, import soils, and composted materials by an independent agronomic soils testing laboratory (member of the California Association of Agricultural Labs). No less than four (4) samples shall be taken at locations to be selected by the City Representative after the sidewalk paving is complete and in place. Soils Laboratory shall be approved by the landscape architect of record and advised that all plants are native to the area and that amendments shall be minimized.
- B. The soil scientist report shall include agronomic analysis results, including soil structure, nutrient and toxic materials, and shall include recommendations for applications of pre-plant fertilization and post-maintenance fertilization. A second soil report shall be performed after soil preparation to confirm that soil preparation was performed in compliance with the pre-plant soils report and specifications. Deviation from the control mix shall not exceed twenty percent (20%).
- C. Materials List. Within fifteen (15) calendar days after award of Contract, the Contractor shall submit to the City's Representative, two (2) copies of documentation that all materials are available for approval. Materials shall not be ordered until materials submittals have been approved. Submit the following:
 - 1. Plant Materials – representative photos of each species as to size.
 - 2. Organic amendments.
 - 3. Topsoil.
 - 4. Commercial Fertilizer.
 - 5. Mulch.
- D. Substitutions. Any and all substitutions due to unavailability must be requested in writing prior to confirmation of ordering. Contractor shall provide a list of nurseries and suppliers contacted for verification of unavailability. Substitutions shall not be permitted after the Material List has been reviewed and accepted. No substitutions will be allowed without prior written approval by the Landscape Architect. Equipment or materials installed or furnished without prior written approval may be rejected and the Contractor required to remove and replace such materials from the site at the Contractor's own expense. The Contractor shall not request a plant substitution based solely on the Contractor's failure to verify the cost of plant material prior to bidding. The Contractor shall bear the responsibility of providing the material as shown on the plans.

Delivery to the site may begin upon approval of samples by the City's Representative and no moer than 10 days prior to planting.

- E. Certificates of Delivery. Prior to installation, the Contractor shall submit to the City's Representative two copies of all manufacturer's literature, receipts of sale, and laboratory analytical data, bearing the

manufacturer's or supplier's guaranteed analysis. The Contractor shall provide certificates of delivery with each shipment of materials. Certificates shall state source, quantity or weight, type and analysis, and date of delivery. All certificates shall be delivered to the City's Representative. Written certifications required to be submitted include:

1. Size and quantity of plant materials
2. Quantity of all soil amendments broken down to distinguish between turf and native planting areas..
3. Quantity and quality of topsoil.
4. Quantity of commercial fertilizer broken down to distinguish between turf and native planting areas.
5. Quantity of other additives such as sulfur, iron sulfate, gypsum, etc.
6. Quantity and composition of organic mulch.

1.5 QUALITY ASSURANCE AND REQUIREMENTS

- A. Permits and Fees. The Contractor shall obtain and pay for any and all permits, testing, and inspections, as required.
- B. Ordinances and Regulations. Contractor shall abide by all applicable local, state and federal rules and regulations relating to the Scope of Work.
- C. Explanation of Drawings. The Contractor shall be fully acquainted with the site prior to construction. Drawings are diagrammatic and are generally indicative of the work to be completed. The work shall be installed in such a manner as to avoid conflicts between irrigation systems, planting and architectural features. Any discrepancies in the plans or with existing field conditions shall be brought to the attention of the City's Representative immediately. The Contractor shall not willfully install the planting as shown on the drawings when it is obvious in the field that obstructions, grade differences or discrepancies in area dimensions exist that might not have been considered in the Landscape Design. In the event that notification is not performed, the Contractor shall assume full responsibility for any revision necessary.
- D. Manufacturer's Recommendations. Manufacturer's recommendations shall apply when no other direction is given or when it is a more stringent requirement than these Specifications.
- E. Correction of Work. The Contractor, at no additional cost to the City, shall correct any and all discrepancies or unsatisfactory work. The correction of work shall be finished within a reasonable period of time mutually agreed upon between the City and the Contractor.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Plant Material: The Contractor shall notify the City's Representative seven (7) days in advance of delivery of all plant materials and shall submit an itemized list of the plants in each delivery. Prior to delivery

of plant material, the City LMD inspector will make recommendations about quality control regarding plant selection. Maintain and protect plant material in a healthy condition prior to planting. Plant material which has been rejected or damaged after acceptance shall be removed from the site and replaced with acceptable materials.

1.7 GUARANTEE AND REPLACEMENT

- A. Written Guarantee. The Contractor shall furnish a written guarantee of materials and workmanship for a period of one (1) year from the date of final acceptance. The Contractor shall repair or replace defective items within a reasonable time, but not more than 14 calendar days, from notification by the City at no additional cost to the City. All shrubs and groundcover shall be guaranteed for a period of ninety (90) days from final acceptance. All trees shall be guaranteed for a period of one (1) year from final acceptance. All guarantee periods shall begin from the time of final written acceptance by the City. This acceptance shall be after the 30-day Plant Establishment Period and the 90-day Maintenance Period have been accepted and approved in writing by the City.

1.8 Order of the Work

- A. The irrigation shall be complete and operational prior to the start of any planting installation. The Contractor shall have completed an irrigation coverage test in the presence of the City's Representative and have written approval from the same. An exception may be made in the case of the installation of specimen trees 24" and larger and palms. The Contractor shall be responsible to provide adequate water to the specimen trees by whatever means necessary until the irrigation is complete and operational.

MATERIALS

Add the following to Section 212-1 Landscape Materials:

"Use only materials of the brands, type or species noted on the drawings or approved equal. Materials shall be new; plants shall be of the type and size specified, standard approved and first grade quality free from diseases or insects. All plants shall be tagged with name and size in accordance with the standards of practice recommended by the American Association of Nurserymen. Any rejected material shall be promptly removed from the site."

A. Topsoil

Topsoil shall be Class "A" as specified in Section 212-1.1.2. Topsoil to be used as planting medium in turf areas shall be fertile, well-drained, of uniform quality, free from stones over 1-inch in diameter, sticks, oils, chemicals, plaster, concrete and other deleterious materials. Topsoil in shrub areas may have stones, rock and cobble native to the site.

Add the following to the topsoil requirements:

- 1) Boron and Sodium Content. Boron content shall not exceed 1 PPM as measured by the saturation extract. Sodium absorption ratio (SAR) shall not exceed 6 and the electrical conductivity of the saturation extract shall not exceed 3.0 milliohms per centimeter at 25 C.
- 2) If additional soil excavation and replacement is required, submit an "Extra Work" request to the City Engineer. The Extra Work shall conform to Section 3-3 of the SSPWC.

B. Soil Fertilizing and Conditioning Materials

Add the following at the end of Section 212-1.2.1 General:

"Soil Amendment. The following organic soil amendments are for bid purposes only. Specific recommendations and specifications will be made after 5 soil samples, in locations determined by the City Representative, have been tested for nutrients, toxicity and with amendment recommendations, have been tested at the expense of the contractor.

1. Nitrogen stabilized sawdust derived from Redwood, White Fir and Red Fir or Cedar shavings shall be added to the soil. Pine will not be acceptable. A commercial grade product shall be used. Composted organic humus may be substituted with prior written approval from the Landscape Architect unless the soils test indicates this would be detrimental to plant establishment and growth. Six cubic yards per 1,000 square feet in turf areas. Native planting areas shall not be amended.
2. Iron sulfate, 20% iron (expressed as metallic iron), derived from ferric and ferrous sulfate, 10% (expressed as elemental). Ten pounds per 1,000 square feet in turf areas, 3 pounds per square feet in shrub areas."

C. Fertilization Specifications

Add the following to Section 212-1.2.4 Organic Soil Amendment:

"Organic Soil Amendment shall be Type 1, and shall not include Pine or Eucalyptus."

Add the following Section:

"212-1.2.6 Pesticides and Herbicides. All chemicals used for pest control shall be registered by the State of California Department of Food and Agriculture and the Environmental protection Agency with registration identification on the label. All chemicals shall be applied as per the registered label instruction and manufacturer's recommendations. Restricted chemicals shall be applied in a manner consistent with State and Federal Law by a licensed applicator possessing the appropriate classification. No chemicals may be used on site without prior written approval of the City's Representative." Contractor shall submit, to the City's representative, full and complete chemical labels with corresponding MSDS sheets prior to applications.

Delete the last sentence of Section 212-1.4. General which states:

"Other than normal side pruning during the growth period, no pruning shall be done prior to inspection at the nursery."

And replace it with:

"Trees, which have been topped, headed back, or otherwise damaged by pruning, shall be rejected. Side pruning of lower branches is discouraged and may be grounds for rejecting trees. Trees shall not be pruned after selection and delivery to the site without prior written approval of the Landscape Architect or City's LMD inspector. Trees which have been pruned without authorization shall be subject to removal and replacement at no additional cost to the City."

Add the following at the end of Section 212-1.4 Plants:

- A. The Contractor is responsible to furnish and install all plant quantities as shown on the Plans. On center spacing shall supersede quantities given or symbols shown. Additional plants may be necessary to fill all areas at the on center spacing. The Contractor shall provide additional material as needed to complete the planting at no additional cost to the City.
- B. All plant material shall be No. 1 grade healthy, disease, and pest free, without visible damage, abrasions, or disfigurement.
- C. Plants specified shall be delivered in the containers specified and true to industry standard size for the container specified. Plants shall have been growing with the specified container a minimum of six months and no longer than one (1) year and shall be properly rooted without being root-bound. Plants with cracked or broken root balls shall be rejected. Kinked and girdling roots will be rejected.

Add the following to Section 212-1.4.2 Trees:

- A. All trees shall be true to type or name as ordered or shown on the plans and shall be individually tagged or tagged in groups by species and cultivar (variety).
- B. All trees shall be healthy, have a form typical for the species or cultivar, be well-rooted, and be properly trained. Sycamore, Arctostophylus and Prunus illicifolia trees shall be natural looking and selected at the nursery by the City Representative.
- C. All trees shall comply with Federal and State laws requiring inspection for plant diseases and pest infestations. Inspection certificates required by law shall accompany each shipment of plants. Clearance from the County Agricultural Commissioner as required by law shall be obtained before planting trees delivered from outside the County in which they are to be planted.
- D. The rootball of all trees shall be moist throughout and the crown shall show no signs of moisture stress.
- E. It is desirable that trees should stand upright without staking.
- F. Small temporary branches (less than ¼ diameter of trunk) below the scaffold branches should not be removed.
- G. Broad-leaved or coniferous, excurrent (central trunked) trees shall have a single, straight trunk with no double leaders (codominant stems) or vigorous, upright branches competing with the leader. Radial and vertical distribution of branches shall form a symmetrical crown.
- H. Each tree shall comply with the above criteria without having or having had to remove, now or within the previous growing season (at least six months), more than 25 percent of the branches of a size similar to or larger than those of the potential scaffold branches.

- I. The tree shall be free of roots visibly circling the trunk, and free of "knees" (roots) protruding above the soil.
- J. If in a tapered container, the rootball periphery shall be free of circling roots larger than ¼" in diameter and a bottom mat of roots ¼" or larger (the acceptable diameter of circling peripheral roots depends on species and size of the rootball).
- K. When untied from the nursery stake, the tree shall not bend to touch the top rim of the container.
- L. The trunk and main roots shall be free of circling roots and kinks within 2" of the trunk to a depth of 2-1/2". Inspect the roots by tipping the rootball or container on its side and with a small jet of water expose the roots within 2" of the trunk to a depth of 2-1/2" below the topmost root attached to the trunk. After inspection, replace soil washed from around the trunk with a similar soil mix (less than ten percent of the total rootball volume should be added). If circling of roots is suspected, a representative sampling of approximately two trees or two percent of the total for each species whichever is greater may be removed from their containers and cleaned of soil. The trunk and main roots shall be free of circling and kinked roots. Circling roots at the periphery of the rootball shall not be reason for rejecting a tree unless the circling roots are large for the species and shoot growth is not acceptable for the species. The trunk flare, where the trunk and main roots connect, shall not be buried by more than one (1) inch of soil in its container.
- M. In case the sample trees inspected are found to be defective, the City reserves the right to reject the entire lot or lots of trees represented by the defective samples. Any plants rendered unsuitable for planting because of this inspection will be considered as samples and will not be paid for.
- N. Trees shall be of sufficient height and caliper for the container size and plant type specified. Typically, 15-Gallon trees shall be 6'-8', 24" box trees shall be 8'-10', 36" box trees shall be 10' -12'. "
- O. Tree pits shall be tested for adequate drainage prior to planting trees.
 - 1. A minimum for 3-test tree planting holes per acre shall be dug and filled with water in the presence of the City Representative.
 - 2. After 24 hours, the City Representative shall observe all holes to determine if water has drained completely.
 - 3. Relocate tree(s) or install augured sumps in holes which fail to drain properly, as directed by the City Representative.

Modify Section 212-1.5.3 Tree Stakes as follows:

Delete the first sentence "The type of tree stake shall be as designated in the Specifications."

And replace with the following:

"Tree stakes shall be straight Lodge Pole Pine free from knots, splits, checks or disfigurement. Stakes shall be 2-inch nominal size and 10 feet in length. Stakes shall have a tapered drive point and chamfered top and shall be treated with an approved wood preservative. Supports for staking shall be rubber cinch ties manufactured by V.I.T. Company, Phone: (949) 891-8338,

or approved equal, attached in a figure eight position, and secured with a nail at the stake. All wood preservatives shall be in accordance with the latest State, Federal, and local codes and regulations. "

METHODS

Add the following at the end of Section 308-1 GENERAL:

"Perform actual planting only during periods when weather and soil conditions are suitable and in accordance with locally accepted practice."

Modify Section 308-2.1 to delete the reference to Class B Topsoil. Only Class A Topsoil will be utilized on the project. Add the following after the last sentence:

A. Soil Amendment.

All turf planting areas shall receive soil amendments. Amendments shall be uniformly spread and cultivated thoroughly by means of a mechanical tiller into the top 6" of soil. Specific planting specifications will be made after rough grading operations are complete and the Contractor has tested soil samples. All planting areas shall be properly compacted after mechanical tilling by irrigation applications or other means.

Add the following at the end of Section 308-2.4 Finish Grading:

"All rocks, clods, sticks or other debris shall be removed from the turf planting area site and disposed of in a lawful manner at the Contractor's expense. "

Item number 3 shall be modified from "3) Prepared soil mix shall be deposited in the remainder of the hole to finish grade." to "3) Prepared soil mix and planting tablets per Section 212-1.2.3 shall be deposited in the remainder of the hole to finish grade."

Add the following to the end of the section:

A. Planting Layouts. Locations for all trees, shrubs and outlines of areas to be planted shall be marked on the ground by the Contractor before any plant pits are dug. All locations shall be approved by the Landscape Architect and City's Representative. Layout shall be accomplished with flagged grade stakes indicating plant names and specified container size on each stake. It shall be the Contractor's responsibility to confirm with the City and governing agency, the location and depth of all underground utilities and obstructions. No planting shall take place until an irrigation coverage test has been completed and the irrigation system has been approved, in writing by the City, as complete and in place. (See Section 1.8 of these specifications."

Section 308-4.6 Plant Staking and Guying

Tree staking and guy wiring shall be per details shown on plans.

MEASUREMENT AND PAYMENT

The contract price paid for **PLANTING** will be measured at the Price for **EACH UNIT** it as indicated in the **BID SCHEDULE** and shall include full compensation for each item complete and in place. The **BID SCHEDULE** unit prices shall include full compensation for all finish grading, soil preparation, planting, planting accessories and all appurtenances required for a complete functioning planted system and no additional compensation will be allowed therefore.

BID ITEM 33 – SOIL PREPARATION & AMMENDMENTS (LUMP SUM)

BID ITEM 34 –15 GALLON TREE (EACH)

BID ITEM 35 – 24” BOX TREE (EACH)

BID ITEM 36 – 36” BOX TREE (There are no 36” box trees)

BID ITEM 37 – 1 GALLON SHRUBS (EACH)

BID ITEM 38 – 5 GALLON SHRUBS (EACH)

BID ITEM 39 – 15 GALLON SHRUBS (EACH)

BID ITEM 40 – HYDROSEDED MOWN TURF (LUMP SUM)

BID ITEM 41 – 2” ORGANIC MULCH (CUBIC YARD)

It is expected that plants may be added or deleted at the direction of the City Representative. The contractor shall provide a unit price for purchase and installation of each additional plant according to the **UNIT PRICE BID FOR EACH PLANT**.

BID ITEM 42- IRRIGATION

SCOPE

A. Work Included:

1. All labor, materials, equipment, appliances, fixtures and tests necessary for a new operating irrigation system as indicated on the Contract Drawings. Also included is an additional station on the irrigation controller for the operation of the mister system.

B. Related Work:

1. Documents affecting work of this Section include, but are not necessarily limited to the GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS in DIVISION 1 - GENERAL REQUIREMENTS and other Sections of the Project Manual.
2. Site Clearing and Grubbing in Section 02210.
3. Earthwork in Section 02310.
4. Landscaping 02900.
5. Waterproofing.

6. Water Play Areas
7. Electrical conduit and 120 volt conductors to automatic controller.

SUBMITTALS

- A. Item Omitted
- B. Make all submittal within 30 calendar days from the issuance of the Notice-to-Proceed.
- C. Submit four (4) complete lists of irrigation materials and equipment, including manufacturer's name and address, specific trade names, catalog numbers complete with illustrations, manufacturer's recommendation or printed installation instructions, and/or necessary descriptive literature and clearly mark or underline proposed items.
- D. **Shop Drawings:** None required
- E. **Disapprovals:** Contractor is responsible to promptly resubmit, for approval, necessary data concerning a substitution for a previously disapproved item or piece of equipment that may be requested by the Owner Representative.
- F. **Procurement List:** Use the approved list of irrigation materials and equipment for procurement without deviation unless otherwise authorized in writing by the Owner Representative.
- G. Manufacturer's recommended installation procedure which, when approved by the Owner Representative will become the basis for accepting or rejecting actual installation procedures used on the Work.
- H. Manufacturer's specifications and other data needed to provide compliance with the specified requirements.

QUALITY ASSURANCE

- A. **Workers:** Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.
- B. **Codes and Regulations:** All materials and workmanship in this Section shall comply with all applicable City, County and State Plumbing Ordinances, Codes and Regulations.

- C. **Permit:** Obtain and pay for all required Plumbing and Street Repair a permits. Deliver all permits and certifications of inspection to the Owner Representative.

GENERAL REQUIREMENTS

- A. **Approvals by the Owner Representative:**
1. All approvals on required submittals hereinafter specified.
 2. Approval of all resubmittals requested by the Owner Representative.
- B. **Inspection:** Notify the Owner Representative at least 72 hours prior to time of required inspections.
- C. **Existing Utilities and Plant Materials:** Protect utilities and/or plant materials not designated for removal or modification in place against damage resulting from work of this Contract. Perform any removal and/or modifications only on approval or instruction from the Owner Representative or in accordance with applicable provisions noted or specified. Replace damaged existing plant material with like type and size material. Determine the cost of unreplaceable plant material according to the "square inch" method as described by the Council of Tree and Landscape Appraisers "Manual for Plant Appraisers" Handbook current edition and "Guide for Establishing Values of Trees and Other Plants".
- D. **Verification of Dimensions and Quantities:** Verify site conditions, contract drawings, all dimensions and quantities prior to the bid. Furnish the quantities as may be necessary to do the specific work. Notify the Owner Representative of any discrepancies between the Contract Drawings and the Project Manual and/or execution of the irrigation work prior to the bid. Do not work in areas where such discrepancies occur until further instruction by the Owner Representative.
- E. **Record Drawings:** Comply with provisions of Article 10 - RECORD DRAWINGS of the General Requirements. Accurately dimension location including depths of all piping, valves, and control equipment as installed. Indicate with suitable ink on one set of prints of the Contract Drawings to produce a record of complete installations; to be kept on the job and up-to-date during construction. At the completion of the work and prior to final inspection, the Contractor shall copy his record "as installed" data, using red ink, onto a set of blue-line prints. The Contractor shall certify to the completeness and accuracy of the "as installed" information

indicated on the blue-line prints with his signature. Deliver the signed blue-line prints to the Owner Representative for review prior to start of the plant establishment period.

Dimension from two permanent points of reference, building corners, sidewalk, or road intersections, the location of the following items:

1. Connection to existing water lines.
2. Connection to existing electrical power.
3. Gate valves.

Routing of sprinkler pressure lines. Indicate dimensional location at 25' intervals max.

1. Sprinkler control valves.
2. Routing of control wiring.
3. Quick Couplers.
4. Controller.
5. Other related equipment as directed by the Architect.
6. No mainline or lateral sleeving shall be installed in the landscape.

F. Modification of Contract Drawings: In each case where proposed substitute materials or equipment will require, for proper installation, changes to the design of the project as indicated on the Contract Drawings, appropriate proposed Revision Drawings prepared by a licensed Landscape Architect or Engineer shall be furnished by the Contractor for proper installation of the proposed substitute materials or equipment and for construction by all interested trades of the proposed revisions to the project. The cost of the Drawings and of the proposed revised construction shall be borne by the Contractor. Drawings shall be submitted for the Owner Representative's review within 30 days after the issuance of Notice-to-Proceed.

G. Water and Power Services: Water meter and permanent power source are provided by others.

H. Guarantee: General, in accordance with provisions of Section 28 in GENERAL CONDITIONS. Guarantee the entire irrigation system against defects in materials and workmanship for a period of one year from the date of final acceptance of the Project.

1. Should any deficiencies develop within the specified guarantee period due to inferior or faulty material and workmanship, correct such deficiencies to the satisfaction of the Owner Representative without added expense to the Owner. Further, the contractor shall be required to make any necessary repairs within 24 hours of notification. If the contractor or his agent fail to make such repairs within the stipulated time, the Owner shall make such repairs or have repairs made by a third party and bill the Contractor for all expenses that accrue from making such repairs.
2. The Owner reserves the right to make temporary repairs as necessary to keep the irrigation system equipment in operating condition. The exercise of this right by the Owner will not relieve the Contractor of his responsibilities under the terms of the guarantee.
3. Repair any settlement of backfilled trenches which may occur during a one year period after final acceptance by the Owner Representative without expense to the Owner, including the complete restoration of all damaged planting, paving, or other improvements of any kind.

DELIVERY, STORAGE AND HANDLING

- A. **Delivery**: Deliver products to the job-site in their manufacturer's original containers, with labels intact and legible.
- B. **Storage**: Store piping, materials, fitting, etc. at the job-site where directed by the Owner Representative until such time for installation.
- C. **Handling**: Promptly remove damaged materials and unsuitable items from the job-site and promptly replace with materials meeting the specified requirements, at no added cost to the Owner.

MATERIALS

- A. **General**: Provide recently manufactured materials of the best grade of each respective kind.
- B. **Pipe and Fittings**: The type of pipe material and fittings designated on the Contract Drawings, or as hereinafter specified.
 1. Steel Pipe: Galvanized standard weight Schedule 40 steel water pipe complying with ASTM A53 - SPECIFICATION FOR PIPE, STEEL, BLACK AND HOT-DIPPED, ZINC-COATED, WELDED

AND SEAMLESS; jointed with galvanized, threaded, standard weight malleable iron fittings, and/or couplings.

2. Plastic Pipe: High impact rigid polyvinyl chloride PVC 1220 (Type I, Grade 2), conforming to ASTM D1785 - SPECIFICATION FOR POLY (VINYL CHLORIDE) (PVC) PLASTIC PIPE, SCHEDULES 40 and 80 the minimum pressure rating to be not less than the working pressures. (PVC pipe marked with product standard PS-21-70 conforms to the ASTM requirements.)
3. All Pipes: To be homogeneous throughout and free from cracks, holes, foreign materials, blisters, deleterious wrinkles, and dents.
4. Use Schedule 40 PVC plastic pipe for pipe sizes up to and including 2 ½ inch for installation on the supply and discharge sides of control valves unless otherwise indicated.
5. Use Schedule 80 PVC plastic pipe only, when threaded joints are specified, or otherwise permitted by the Owner Representative.
6. Continuously and permanently mark all pipes with the following:

Manufacturer's name or trademark, size, schedule, and type of pipe, working pressure at 73 degrees F. and National Sanitation Foundation (N.S.F.) approval.

7. Fittings and Couplings for Plastic Pipe: Threaded or slip-fitting tapered socket solvent weld type. Provide threaded adapters with socket pipe for connections to threaded pipe. Plastic pipe fittings and couplings shall be PVC I or PVC I/II material supplied in the same schedule size specified for the pipe. Indicate the type of plastic material and schedule size on each fitting or coupling. Fittings and couplings shall comply with the following specifications (Lasco Pipe, or equal.]).

Socket Fittings

Schedule 40

ASTM D-2466 - SPECIFICATION FOR POLY (VINYL CHLORIDE) (PVC) PLASTIC PIPE FITTINGS,

SCHEDULE 40(CHLORIDE)(PVC)PLASTIC PIPE FITTINGS,

Schedule 80

SCHEDULE 80

ASTM D-2467 - SPECIFICATION

Threaded Fittings

Schedule 80

ASTM D-2464 - SPECIFICATION FOR THREADED POLY

FOR POLY (VINYL CHLORIDE)
(PVC) PLASTIC PIPE FITTINGS,
SCHEDULE 80;

ASTM D-1785 - SPECIFICATION
FOR POLY (VINYL CHLORIDE)
(PVC) PLASTIC PIPE,
SCHEDULES 40, 80 AND 120

8. All Other Metal Pipe and Fitting: All metal piping, pipe fittings and nipples consisting brass, copper, bronze, etc. shall comply with appropriate ASTM testing standards including mercurous nitrate test. Ductile iron fittings for restrained plastic pipe shall be manufactured of ductile iron, Grade 65-45-12 in accordance with ASTM A536. Fittings shall have deep bell push-on joints with gaskets meeting ASTM F477. Gasket lubricant for push on fittings shall be non-toxic, odorless, tasteless and shall not support bacteria. Use "Seal Lube", SK#87710 by IPS Weldon Corp. or equal. Valve to pipe restraint shall consist of ductile iron (ASTM A536) grip rings with machined serrations and ductile iron restraint rods. The ring that grips the pipe shall meet the requirements of UNI-B-13-94. The restraint rods nuts shall be made from low alloy steel to AWWA/ANSI C111/A21.11 or ductile iron to ASTM A536. Fitting to pipe restraint shall the full rating of the pipe on which it is used. Grip rings and restraint structures shall be made of ductile iron to ASTM A536. Grip ring serrations shall be fully machined or cast. Clamp bolts and nuts shall meet or exceed ASTM A307. Pipe to pipe restraint shall the full rating of the pipe on which it is used.

C. Valves and Valve Boxes:

1. General: Provide valves of the type and capacity as designated on the Contract Drawings and with the requirements specified herein. All valves shall be capable of satisfactory performance at a working pressure of 200 psi. Valve design shall permit disassembly for replacement of seals without removal of the valve body from the pipeline.
2. Shut-Off Valves: In sizes 2-inch and smaller shall be complying with Federal Specification WW-V-35a, have Teflon seats and seals, be corrosion-resistant with two piece body of cast red bronze. The stem shall be silicon bronze with reinforced Teflon

thrust washer with blow-out proof design and adjustable packing of Teflon - impregnated asbestos.

3. Manual Control Valves: Brass straight or angle pattern globe valves, full opening, key operated with replaceable compression disc, and ground joint union on the discharge end.
4. Automatic Control Valves: Electrically operated with accurately machined valve seat surface, equipped with flow control adjustment, with capability for manual operation and readily disassembled for servicing; slow opening and closing and self-cleaning.
5. Hose Bibbs: Brass except for the handle, replaceable compression disc and be 3/4-inch straight nosed, loose key operated, vacuum breaker and pressure rated for operation at 150 psi.
6. Valve Boxes and Covers: Valve boxes shall be made from a durable black plastic material resistant to weather, sunlight and chemical action of soils. They shall be located in planter areas. The cover shall be 'purple' in color in conformance with regulations for non-potable water use, secured with a stainless steel bolt down mechanism and shall be able to sustain a load of 1,500 psi. Valve box extensions shall be by the same manufacturer as the valve box. All aforementioned valve boxes shall be manufactured by Ametek, Carson, or approved equal. minimum 9 1/2 inches x 16 inches x 12 inches or sized as required for easy access and field servicing of the valve. Valve boxes shall be permanently embossed with 2-inch high initial identify valve box contents:

Shut-Off Valve	SOV
Remote Control Valve	RCV
Manual Control Valve	MCV
Electrical Pull Box	ELEC

Wye-Strainer: Bronze construction fitted with a 20 mesh screen of monel or stainless steel. For sizes over 1" a blow-off cock is required.

D. Backflow Preventer Assembly:

A backflow preventer unit as indicated in the irrigation legend with related components conforming to the governing code requirements.

E. Sprinkler Equipment:

1. Bubbler Heads, and Drip Emitters: Types and sizes as shown on the Contract Drawings.
2. Provide equipment of one type and flow characteristic from the same manufacturer and bearing the manufacturer's name and identification code in a position where they can be identified in the installed position.
3. Bubbler Head to be pressure compensating type.

F. Automatic Controller Unit: Type as called for on the Contract Drawings in accordance with the Project Manual. (Controller shall meet County and State requirements for "Smart Irrigation" valve timing.)

1. The automatic controller shall be an electrically-timed device for automatically opening and closing remote control valves, with provisions for manual operation.
2. Sized to accommodate the number of stations or control valves included in the system.
3. Each station shall be capable of 7 independent days of programming, selective repeatability and a water budgeting program.
4. Each controller shall be provided with 117-volt and 24-volt circuit breakers, a single receptacle outlet (ground fault interrupter type) and a separate disconnect switch to remove the controller from the power source.
5. Each controller shall contain a station index, a 24-hour time index, and a 7-day index that changes at 6:00 a.m.
6. Each controller shall have the capability of programming 0-to 60-minute watering periods for each station.
7. The station index shall advance directly to stations programmed to water without delay and shall not repeat until the next scheduled starting time.
8. The controller shall be wall mounted as indicated on contract Drawings. The Contractor shall submit shop drawing for Owner Representative's review.

G. Conductors:

1. Supply line voltage conductors with THW, 600-volt insulation rating, conforming to the applicable provisions of ASTM D-2219 and 2220.
2. Low voltage control conductors shall be U.L. approved direct burial Type U.F., No. 14 AWG solid copper, unless otherwise required, in accordance with the control equipment manufacturer's recommendation.

H. All rigid electrical conduit shall be one (1) inch, Schedule 40, galvanized steel, threaded and bushed with packing placed in the ends to protect the wiring. Sweep ends of conduit into pull boxes to make splices.

I. Wire Connectors: Conductors shall be joined by the use of an approved waterproof connector and sealer capable of satisfactory operation under continuous submersion in water. (3-M brand of DBY, or equal.)

J. Crushed Rock Sump: Install one (1) inch crushed rock sump, 12" deep in all control or pressure regulator valve boxes and electrical pull boxes.

K. Accessories: Provide two each special head wrenches for installing, removing and adjusting each type and make of sprinkler equipment. Provide two keys each for quick coupler valve, and controller units.

L. Rain Water Harvesting System: The Rain Water Harvesting System is comprised of the components located downstream of the backflow device and upstream of the automatic irrigation valves that are required to convey roof captured rainwater to the irrigation system as detailed on the Contract Drawings.

METHODS

SURFACE CONDITIONS

Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until detrimental conditions are corrected.

IRRIGATION SYSTEM INSTALLATION:

A. General:

1. Perform all work on the irrigation system, including hydrostatic and coverage tests, preliminary operational test of the automatic control system, and the backfill and compaction of trenches and other excavations after topsoil work and before planting.
2. Specimen plants (24-inch or larger size box) will be planted before installing the irrigation system; reroute irrigation lines conflicting with specimen plant locations to clear the root ball, if possible by twenty-four (24) inches.
3. With the Owner Representative's direction, make adjustments where necessary to conform to actual field conditions unless otherwise noted. Irrigation system layouts shown on the Contract Drawings shall be considered schematic.
4. Make the irrigation system operational with uniform and adequate coverage of the areas to be irrigated, prior to planting.
5. All piping on the Contract Drawings shown in paved areas but running parallel and adjacent to planted areas, are intended for design clarification only and are to be installed in the planted area whenever possible.
6. Make water and utility connections as shown on the Contract Drawings.

- ### **B. Trench Excavating and Backfilling:** Size trenches and other excavations to accommodate the irrigation system components, conduits, pipe bedding material and other required facilities. Provide additional space to assure proper installation and access for inspections.

1. Unless otherwise specified, the minimum depth of cover over pipelines and conduits shall be as follows:
 - a. Electrical conduit - 30-inches (36-inches under roadways and parking lots).
 - b. Other Control Wiring - Depth of waterline or sprinkler line, or a minimum of 24-inches cover if without any waterline or sprinkler line.
 - c. Waterlines continuously pressurized - 18-inches for mainlines 3" and smaller.
 - d. Lateral sprinkler lines - 12-inches.
2. Make the bottom of trenches true to grade and free of protruding stones, roots, or other matter which would prevent proper bedding of pipe or other facilities.
3. Backfill trenches so that the specified thickness of topsoil is restored to the upper part of the trench and compacted to 90% relative compaction.
4. Backfill in the planting area shall be flooded in accordance with Subsection 306-1.3.3 – JETTED BACKFILL of the Standard Specifications of Public Works Construction.
5. Compact trench backfill through paved areas with each layer, not to exceed the thickness specified in SSPWC Section 306-1-3.2, to 95 percent relative compaction up to designated grade elevations to receive yard or concrete paving and base material.
6. Resurface trenches through paved areas to match existing pavement.

C. Irrigation Pipeline Installation - General: Execute trench excavating and backfilling, including the depth of cover over the pipeline, in accordance with requirements of Subsection 3.2(B) and SSPWC Section 306-1.2.13, whichever is more stringent.

1. Install pipe fittings in accordance with the manufacturer's recommendations or printed installation instructions before pipe installation.
2. Bed pipe in at least 4-inches of finely divided material or cleaned sand to provide a firm, uniform bearing. Surround the pipe with additional finely divided material or clean sand to at least 12-inches over the top of the pipe. Backfill balance of trench with clean earth material and applicable base material.

3. Deposit trench backfill sufficient to anchor the pipe before the pipeline pressure testing, except that joints shall remain exposed until satisfactory completion of testing.
4. When two or more pipelines are installed in the same trench, separate the pipelines by a minimum horizontal clear distance of 3-inches and a minimum vertical clear distance of 3-inches. Install them so that each pipeline, valve, or other pipeline component may be serviced or replaced without disturbing the other.
5. Assemble all assemblies as specified and in accordance with the manufacturer's directions.
6. During installation of pipe, fittings, valves, and other pipeline components, prevent foreign matter from entering the system. Temporarily cap or plug all open ends at cessation of installation operations.
7. Accomplish changes in pipelines size with reducer fittings. No close nipples or bushings shall be used.
8. Place all lines under roadway or driveway in Class 315 PVC sleeves. Oversize the sleeves sufficiently to house the pipe, fittings and the directed burial control wires, unless otherwise indicated.
9. Dissimilar metals shall be separated by an approved "Dielectric" coupling.

D. Plastic Pipeline:

1. Join plastic pipe with socket type solvent welded fittings, threaded fittings, rubber ring fittings or by other means specified. Install steel pipe first when plastic pipe is joined to steel pipe.
2. Cut square, externally chamfer approximately 10-15 degrees and remove all burrs and fins.
3. Make solvent welded joints in accordance with ASTM D2855 - PRACTICE FOR MAKING - SOLVENT - CEMENTED JOINTS WITH POLY (VINYL CHLORIDE) (PVC) PIPE AND FITTINGS. Use the solvent recommended by the pipe manufacturer.

4. Install plastic pipe in accordance with ASTM D2774 - PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PRESSURE PIPING and the requirements herein.
5. Exercise care in assembling a pipeline with solvent welded joints so that stress on previously made joints is avoided. Handling of the pipe following jointing, such as lowering the assembled pipeline into the trench, shall not occur prior to the set times specified by the manufacturer.
6. Apply solvent to pipe ends in such a manner that no material is deposited on the interior surface of the pipe or extruded into the interior of the pipe during jointing. Wipe off excess cement on the exterior of the joint immediately after assembly.
7. Threads for plastic pipe shall be as specified in Subsection 2.1(B)7 above. Install a plug in the bore of the pipe to prevent distortion prior to the threading.
8. Make threaded pipe joints using Teflon tape or other approved jointing material. Do not use solvent with threaded joints.
9. Protect pipe from tool damage during assembly. Use vises with padded jaws and strap wrenches for installation of fittings and nipples.
10. Remove and replace plastic pipe which has been nicked, scarred, or otherwise damaged.
11. Snake plastic pipe from side to side in the trench to allow 1-foot of expansion and contraction per 100 feet of straight run.
12. Do not expose the pipeline to water for 24 hours after the last solvent welded joint is made.

E. Installation of Valves, Valve Boxes, and Special Equipment:

1. General: Install all valves and other equipment in strict accordance with the details in a normal upright position, unless otherwise recommended by the manufacturer, and make readily accessible for operation, maintenance and replacement.

2. Install valves of the same size as the pipeline in which they are installed, unless otherwise indicated.
3. Install shut-off valves and sectional control valves below ground; house in a covered valve box that will permit access for field servicing.
4. Install hose bibs projecting above grade 1-foot from curbs, pavement, walks or walls when possible.
5. Set valve boxes and valve markers to finish grade on a minimum 12-inch deep layer of 1-inch size crushed rock and set valves at sufficient depth to provide clearance between the cover and valve handle or key when the valve is in the fully open position. Place crushed rock below valve. Do not cover valve with pea gravel.
6. Provide backflow preventers with pipe supports and the accessories necessary to properly secure the assembly. Install backflow preventers per prevailing codes, certified by a licensed inspector as required by the County Health Department Test Instructions, Water Pollution Control Section.
7. No equipment shall be installed closer than 12 inches to any paved surface, unless separated from the paved surface by a wall, fence, curb, or similar barrier, or installed underground.

F. Irrigation Head Installation and Adjustment:

1. General: In accordance with the requirements of Subsection 3.2 of this Section, flush and pressure test all mains and laterals, including risers before installing irrigation heads, after which perform a water coverage/distribution test.
2. Location, Elevation and Spacing:
 - a. Install drip manifold in below grade valve box. Emitters to be staked so as to distribute water to the base of each plant as detailed on the Contract Drawings.
 - b. Install bubbler heads in below-grade root watering assembly unless otherwise indicated.
3. Riser Installation:

- a. Install risers perpendicular to finished grade.
 - b. All fixed risers shall be of galvanized steel; all swing joint risers shall be of either Sch. 80 PVC, unless otherwise indicated.
 - c. Provide threaded pipe between the connection to the lateral or main and the sprinkler head.
 - d. All riser assemblies shall be double swing joint type.
4. Irrigation Head Adjustment:
- a. At no time is the irrigation system to spray water on roadways or cause any erosion to the site.
 - b. Low Head Drainage: The Contractor shall install in-line drainage valves at irrigation heads where necessary to prevent low head drainage.

G. Automatic Control System Installation:

- 1. General: Install a complete automatic irrigation control system, including the automatic controller, automatic control valves and wiring, and all necessary accessories and utility service connections.
- 2. Install the automatic controller at the location designated on the Contract Drawings. Verify location with Owner Representative prior to installation.
- 3. Install a separate disconnect switch between the source of power and the controller and a single receptacle outlet (ground fault Interrupter type) as specified herein before. Provide fuse control components in the controller and ground the chassis.
- 4. Install all service wiring at the minimum depth specified in Subsection 3.2(B) of this Section in Schedule 40 galvanized steel electrical conduit from the service point to the controller. The minimum service wire shall be No. 12 AWG copper 600 volt, Type THW or THWN or larger, as required by the Contract or controller manufacturer. Locate splices only in specified pull boxes and make splices with a waterproof packaged kit approved for underground use. Set pull boxes

to finish grade on a 12-inch deep layer of one (1) inch crushed rock.

5. House control wiring in conduit between the controller and an electrical pull box at the base of the controller. House control wire under all yard or concrete paved areas in Class 315 PVC waterline pipe sleeve. All other wiring issuing from the electrical pull box shall be direct burial and installed in the main or lateral waterline trenches wherever practical.

The contractor shall run two extra black control wires from the automatic controller to the farthest valve on the system, or to the farthest valve at each end of the controller area, if the farthest area extends in two directions from the controller. When the control wiring cannot be installed in a pipe trench, install control wiring a minimum of 18-inches below finish grade and install a bright colored permanent identification band with suitable markings in all pull boxes and near termination of each conductor, in the trench 6-inches below finish grade directly over the wire. Mainline and irrigation laterals may be installed 12" below soil surface in safety surfacing excavations.

6. Color code all common wire white with all control wire color coded except white. Each valve station wire shall be color coded as follows: red – station 1; yellow – station 2; blue – station 3; green – station 4 orange – station 5; tan – station 6; purple – station 7; pink – station 8; brown – station 9; gray – station 10; repeat for addition station. Make splices in control wire in accordance with the requirements for service wire. Leave at least 2-feet of coiled slack at each splice and point of connection inside of valve boxes.
7. Testing Electrical Components: Field tests shall be performed by the Contractor on all irrigation system conductors in accordance with the requirements specified herein prior to performing the functional tests. Where conductors are installed by trenching and backfilling, such tests shall be performed after at least six (6) inches of backfill material has been placed over the conductors and backfill material has

been compacted. Refer to trenching details on the drawings.

Prior to the start of the functional testing, the Contractor shall perform the following tests on all irrigation system electrical conductors in the presence of the Owner's representative.

Each circuit shall be tested for continuity and open circuits.

The functional test for all the electric automatic irrigation system(s) shall consist of a minimum of fifteen (15) working days of operation during which time the controller shall complete at least three (3) complete cycles automatically for each station. The lengths and frequencies of the cycles will be determined by the Owner's representative. If unsatisfactory performance of the system develops, the condition shall be corrected and the test repeated until fifteen (15) working days of continuous, satisfactory operation is obtained.

The functional test shall be satisfactorily completed prior to the start of the plant establishment period.

Repair to the irrigation system shall be made within five (5) working days of a malfunction or damage to any portion of the system.

8. Leave the control system in operating condition with an operational chart mounted within the controller cabinet upon completion of the work.

FLUSHING AND TESTING

A. Flushing: After completion, and prior to the installation of any terminal fittings, thoroughly flush the entire pipeline system to remove dirt, scale, or other material. After flushing, conduct the following tests in the sequence listed below. Provide all equipment, materials, and labor necessary to perform the tests. Conduct all tests in the presence of the Owner Representative.

1. Pipeline Pressure Test: Perform a water pressure test on all pressure mains and laterals before any couplings, fittings, valves, and the likes are concealed. Cap all open ends after the water is turned into the line in such a manner that all air will be expelled. Test pressure mains with all control valves to

lateral lines closed. After the pressure main test, open all valves to test lateral lines. The constant test pressure and the duration of the test are as follows:

- a. Mains: 24 hours at 150 psi.
2. Operational Test: Evaluate the performance of all components of the automatic control system for manual and automatic operation. During the maintenance period, and at least 15 days prior to final inspection, set the controller on automatic operation so that the system will operate satisfactorily during such period. Make all necessary repairs, replacements, and adjustments until all equipment, electrical work, controls, and instrumentation are functioning in accordance with the Contract Documents.

OPERATING MANUALS AND EQUIPMENT

- A. Furnish the Owner with four bound copies of operating and maintenance manuals for all irrigation system equipment such as automatic controller.
- B. Explain in detail all irrigation equipment operations, watering schedule and maintenance procedures to the Owner personnel directed by the Inspector and Owner Representative before completion of the project.
- C. Provide the Owner with a reduced legible copy of the "As-Installed" Irrigation Plan hermetically sealed in a plastic cover to be affixed inside the controller cover.

MEASUREMENT AND PAYMENT

The contract price paid for **IRRIGATION** system components as listed in **BID ITEM 51** shall be paid at the **LUMP SUM** price as indicated in the BID SCHEDULE and as listed below shall include full compensation for installation of a functioning irrigation system, including connection to existing water meter and coordination with the water purveyor, complete in place as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the City Representative and no additional compensation will be allowed therefore. See Planting Measurement and payment of addition or deletion of bubbler price adjustments.

BID ITEM 43 – LANDSCAPE MAINTENANCE

SCOPE, MATERIALS AND METHODS

Delete Section 308-6 MAINTENANCE AND PLANT ESTABLISHMENT in its entirety and replace it with the following:

SCOPE OF WORK

- A. The Contractor shall furnish all labor, material, equipment, and services required to maintain the landscape in pleasing manner. Watering, trimming, fertilizing, weeding, spraying, and pest control shall be included in the plant establishment and maintenance periods. All hardscape surfaces shall be kept clean and all gutters, drains and drain pipes shall be free of silt and debris. The Contractor shall be responsible for maintaining adequate protection of the area. Damaged areas including, but not limited to, plant death, vandalism, and theft, shall be repaired at the Contractor's expense until such time as the Contractor receives written acceptance of the project by the City.
- B. Observation Schedule. The Contractor shall be responsible for notifying the City 48 hours in advance for the following site visits:
 - 1. Pre-job conference.
 - 2. Acceptance of finish grade.
 - 3. Acceptance of plant material.
 - 4. Acceptance of planting layout.
 - 5. Acceptance of tree pits, prior to planting.
 - 6. Acceptance of soils preparation and planting.
 - 7. Completion of planting and acceptance into the plant establishment period.
 - 8. Completion of 30-day plant establishment period and acceptance into the maintenance period.
 - 9. Final acceptance of the project.
- C. Fertilizer. Contractor is responsible for providing an agronomic soils report from a laboratory approved by the Owner. Contractor is responsible for all fees involved in the soils analysis. Contractor shall maintain fertilizer application through establishment and maintenance period at no additional cost to the City. Contractor to apply balanced fertilizer at the rate recommended by the approved agronomic soils report.
- D. Plant Establishment. It is the responsibility of the Contractor to inform the City of completion of the project and request an inspection or order to begin the Plant Establishment period. The project will not be accepted into the Plant Establishment period until the following items have been completed and accepted by the City:
 - 1. All work required in the plans has been completed and accepted. The project shall not be subdivided into phases.

2. All punch list and correction items have been completed and accepted.
3. An irrigation coverage and lateral line flush test has been completed and accepted.
4. Permanent power has been established and is continuous to the automatic controller(s).

The Plant Establishment Period shall be a minimum of 30 days during which time all plant materials shall thrive. All plants shall thrive without disease, pest infestation, stress, die-back, broken branches, or poor pruning. All planting areas shall be weed free. Any plants that are not thriving at the end of the 30 days shall be replaced at the Contractor's expense and shall be maintained for another 30 days. It shall be the Contractor's responsibility to request an inspection at the end of 30 days, and then at the end of the 60 day maintenance period. If the Contractor fails to do so, or if the plant materials are not in a satisfactory condition, the Plant Establishment period will be extended until all areas are acceptable to the City. The project shall not be segmented into maintenance phases unless specifically authorized in writing by the City. The plant establishment period shall be part of the maintenance period.

- E. Maintenance Period. Once the project has been accepted into the final 90 day Maintenance Period, the Contractor shall inspect the site weekly performing all fertilizing, trimming, weeding, trash removal, plant replacement, or other maintenance duties as needed to maintain an attractive environment at no additional cost to the City.
1. The irrigation shall be checked weekly and adjusted as needed to maintain plant health without run-off, overwatering, or overspray.
 2. During the maintenance period, a balanced fertilizer shall be applied at the rate recommended by the approved agronomic soils report. In the event that ground cover, trees or shrubs, exhibit nutrient deficiencies, necessary action shall be taken by the Contractor at no additional cost to the City.
 3. No tree pruning shall be done without approval of the City and shall be in strict accordance with the International Society of Arboriculture Standards and Practices. A Certified Arborist and/or Certified Tree Worker shall perform pruning.
 4. Shrubs shall not be clipped into balls or boxed forms. Trees and shrubs shall be pruned back to the lateral branches or buds. Stubbing will not be permitted.
 5. Old, wilted flowers and foliage shall be pinched or cut off and removed.
 6. No supplemental daytime irrigation shall be allowed during the maintenance period without prior approval.
 7. The site shall be kept free of all clippings, debris and trash. Drains shall be kept free of trash, silt or debris.
 8. Paved areas shall be kept clean.

9. The Contractor shall be responsible for pest management, including insect, disease, invertebrate or vertebrate. Pest management shall be performed in accordance with all Federal, State and local codes and regulations.
- F. Final Acceptance. The Contractor shall be responsible for notifying the City, the local agency and all other necessary parties 10 days prior to the completion of the maintenance period. Deficiencies noted during the final inspection shall extend the maintenance period until all deficiencies are corrected. All filters and irrigation shall be adjusted to required height in relation to finish grade. Turf shall be mowed, edged, weeded, and trimmed around sprinklers, valve boxes and tree basins. All plant material shall be weed-free. Plant material not showing vigor or that has been damaged or is missing shall be replaced. If substantial amounts of plant material has failed or is missing, the maintenance period shall be extended until the health of the plants has been established, not less than 30 days. All turn over items, including maintenance manuals, equipment items, "As-built" plans, irrigation controller charts and written guarantee shall be received and accepted by the City prior to final acceptance. The end of maintenance shall occur only upon written acceptance by the City and the local agency."
(See Turnover Sheet end of this section)

MEASUREMENT AND PAYMENT

The contract **LUMP SUM** unit price paid for **90 DAY PLANT MAINTENANCE AND ESTABLISHMENT** will be measured and paid monthly and shall include all labor and materials as shown on the plans as specified in the Standard Specifications and these Special Provisions, and as directed by the City Representative. No additional compensation will be allowed therefore.

MANUFACTURED PLAY & EXERCISE EQUIPMENT

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Bid items **45-58** shall be placed as shown on the plans and in conformance with these special provisions.

SCOPE

This section consists of furnishing all labor, materials and equipment required to install, the MANUFACTURED PLAY AND EXERCISE equipment complete as specified. The equipment shall be assembled and/or installed on site as per manufacturer's recommendations and this section at the locations shown on the Contract Drawings and as directed by the City Representative.

Contractor shall be responsible for site installation of these items and for furnishing shop drawings of and installing footings, anchors, fasteners,

touch-up, repair and other accessory items as required. All work and equipment provided shall be subject to approval of the City Representative.

SUBMITTALS

Submit two (2) copies of the manufacturers' catalog cut sheets, data, installation guidelines, shop drawings and certifications which indicate compliance with the requirements specified for each piece of play equipment. Shop drawings shall include footing construction, depths in relation to finish play surface and finish grade.

Contractor shall provide certification, after installation and substantial completion, by the playground installer certifying that the equipment has been installed per the manufacturer's recommendations and instructions, and meets or exceeds all necessary safety requirements as stated in industry standard documents and as required by a certified playground safety inspector (to be provided by the City)

The manufacturer will be required to provide the contractor with complete installation drawings including specifications and a replacement parts list for all products. The installer shall have at least 5 years previous experience installing playground equipment.

GUARANTEE

Contractor shall provide a written guarantee on his/her firm's letterhead, for all materials and workmanship for a period of one (1) year exclusive of vandalism. Written guarantee shall be submitted to the City representative at the final inspection prior to final acceptance of the work.

MATERIALS

All footings and appurtenant materials shall conform to Sections 201, 204, 206, and 210 of the SSPWC, latest edition. All materials and equipment shall be new and meet with manufacturer's requirements. The Contractor shall furnish all labor, equipment, and materials necessary to install the following play equipment complete in place.

Manufactured play and exercise equipment shall consist of the following manufactured equipment, all colors & finishes per Construction plan:

Bid item 45; Kompan Robinia Series 'See-Saw for 4' #NRO106
Bid item 46; Landscape Structures 'ZipKrooz' Accessible Zipline #3841
Bid item 47; Landscape Structures Arc Disk Swing 'OodleSwing' #173592A
Bid item 48; Columbia Cascades 'Embankment Slide' #1650-83-01-EMB
Bid Item 49: Goric 'Draw gates' #E5663030
Bid item 50; Goric 'Farm Pumps' GP46014 #E5570510 (without platform)
Bid item 51 Columbia Cascades Pipeline Fitness Route 'Leg-Flex' Signage only #9707-03
Bid item 52: Kompan Moments Series 'Daisy 4 person Spring Rider' #M128P
Bid item 53: Landscape Structures Playshaper 'Tree House Structure' #3789
Bid item 54: Landscape Structures 'Arched Single Bay Swings' #177330A with one molded bucket seat #177350A and one belt swing #174018A
Bid item 55 Kompan Robinia Series 'Wooden Spinner' #NRO110
Bid item 56: Kompan Elements Series 'Spinner Bowl' #ELE400024
Bid item 57: Kompan Robinia Series 'Triple Balance Beam' #NRO804
Bid Item 58: Heavy Duty galvanized HB3-89 Horizontal Bars by LA Steelcraft extend manufacturer's recommended pole lengths to 11' and 12' to account for safety surface.

The contractor may substitute "or equal" equipment if and only if the substitution provides equal play activities in the location specified on the plan and within the safety limits of the surrounding play facilities AND as approved by the City Representative. Substitution requests must be accompanied by shop drawings that illustrate the substitution and its safety areas in relation to all surrounding equipment and safety areas.

METHODS

No equipment or apparatus or foundations for equipment shall be placed until location stakes of the facility indicated for construction and its adjacent equipment have been inspected and approved by the City Representative. Equipment elevations and footings shall be indicated in blue chalk or paint and safety distances shall be marked in red.

Installing Contractor and supervisory personnel shall hold all necessary certifications by the playground equipment manufacturer. The installer shall specialize in performing the work, and provide competent workmen skilled

in this specific type of installation. Contractor to provide a list of all subcontractors and their appropriate qualifications.

Contractor shall install the equipment per manufacturer's specifications and installation instructions, subject to product warranties and guarantees. Install level, plumb, secure and repair or replace damaged units as directed by the City Representative.

Deliver and store products in original, unopened containers with labels intact when not being installed and protect during construction operations to prevent damage, theft, or vandalism.

Inspect parts within 48 hours of delivery, compare with manufacturers bill of material, and report any missing or non-conforming parts to manufacturer.

All touch up, cleaning, repair or replacement shall be at contractor's expense.

Prior to equipment installation, Contractor shall examine the substrates and conditions under which all equipment is to be installed and notify the City Representative in writing of conditions detrimental to the proper, complete, and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

After installation and before first use, equipment shall be thoroughly inspected by a certified playground safety inspector. The City shall hire the playground safety inspector. The Contractor shall coordinate all inspections with City representative and Playground Inspector. Contractor shall make any necessary adjustments deemed necessary by the inspector to the play equipment at no additional cost to the City.

MEASUREMENT AND PAYMENT

The contract price paid for **MANUFACTURED PLAY & EXERCISE EQUIPMENT** consists of the following bid Items:

- BID ITEM 44 - SEE-SAW FOR 4- KOMPAN**
- BID ITEM 45- ACCESSIBLE ZIPLINE- LANDSCAPE STRUCTURES**
- BID ITEM 46- ARC DISK SWING- LANDSCAPE STRUCTURES**
- BID ITEM 47- EMBANKMENT SLIDE- COLUMBIA CASCADES**
- BID ITEM 48- DRAW GATES**
- BID ITEM 49- FARM PUMP**
- BID ITEM 50- LEG-FLEX EXERCISE SIGNAGE**
- BID ITEM 51- DAISY 4 PERSON SPRING RIDER**
- BID ITEM 52- TREE HOUSE STRUCTURE**
- BID ITEM 53- ARCHED SINGEL BAY SWING**
- BID ITEM 54- WOODEN SPINNER**
- BID ITEM 55- SPINNER BOWL**
- BID ITEM 56- WOOD TRIPLE BALANCE BEAM**
- BID ITEM 57- HORIZONTAL BARS**

MEASUREMENT AND PAYMENT

These **BID ITEMS 45 - 58** shall be measured and paid for at the contract **LUMP SUM** Price as indicated in the **BID SCHEDULE** and approved by the City Representative for each **MANUFACTURED PLAY & EXERCISE EQUIPMENT** bid item. The contract **LUMP SUM** Price shall represent full compensation for furnishing completed installation of each **MANUFACTURED PLAY & EXERCISE EQUIPMENT** bid item, including all labor, equipment, adjustments and materials necessary to install the play equipment complete in place, including concrete footings, fasteners and inspections as specified in the Standard Specifications and these Special Provisions, and as directed by the City Representative.

CUSTOM PLAY EQUIPMENT

BID ITEM 58- CONCRETE CRAWL TUNNELS

SCOPE

The crawl tunnels shall be constructed as shown on the Exploration Play Area, Sheet L2.3, and the Adventure Trail Area, Sheet 2.2. The work consists of excavation, setting each concrete sewer pipe atop a reinforced concrete cradle and then grading and compacting the finish grade as called for in the plans. .

MATERIALS

The crawl tunnels shall be 42" ID (52 ½" OD) by 7'6" reinforced concrete sewer pipe with male/female end configurations.

Boulder material and methods shall conform to Bid Item 6 and shall be sized according to the plan scale horizontally measures and min 4" above the slope vertically.

High Density Polyethylene moisture barrier shall be made from state-of-the-art polyethylene resins that provide superior physical and performance properties that meet or exceed ASTM E-1745 Class A, B and C requirements. Sheet shall be high tensile strength, puncture resistant, low moisture vapor permeability as well as resistance to decay with 10 mil thicknesses.

Flexible rubber mulch border shall be epoxied to the pipe ends as an impact protection. Call 1.866.kid-wise to confirm availability of model KW-ERT-8-Brwn, 4" side strips.

FLEXIBLE MULCH BORDER AS SAFETY EDGE

METHODS

Compact excavated sub grade to 90% and aggregate base to 95% to the low point of the cradle arc. After placing the drain pipe, compact the aggregate base to (268.9 fs) on both sides of the pipe and machine compact as room allows. Bring the front side to finish grade with decomposed granite.

The moisture barrier shall be continuous from one side of the play piece to the other and extend +/-1 inch above the finish surface on the slope side. No Seams. Backfill the slopes and compact to 895%.

Provide a smooth and continuous decomposed granite surface through pipes. The travel corridor shall drains from the center of each pipe to the outside openings.

Apply the rubber mulch border to the ends of each pipe as a safety precaution. Prior to completing the application of the pipe ends, test the fit and strength of the epoxy adhesive on a single pipe end and obtain approval of the City Representative before completing the work.

MEASUREMENT AND PAYMENT

CONCRETE CRAWL TUNNELS shall be measured and paid for at the contract **LUMP SUM** Price as indicated in the **BID SCHEDULE**. The contract **LUMP SUM**

Price shall represent full compensation for installation, including all labor, equipment, and materials necessary to install **CONCRETE CRAWL TUNNELS** complete in place, including concrete footings, fasteners grading and inspections as specified in the Standard Specifications and these Special Provisions, and as directed by the City Representative.

BID ITEM 59 - WOODEN STEPPERS

SCOPE

Construct wooden log steppers as laid out and detailed in the plans on sheet L2.3 and these specifications in the exploration area. There are no steppers in the adventure trail area (Sheet L2.2).

MATERIALS

Wood shall be hand hewn cedar wood logs. Stock may be obtained from BRAY LOG & LUMBER (gbray@Braylog.com). Representative pictures to be sent to City Representative for approval prior to purchase.

Concrete shall be according to CONCRETE STRUCTURES, BID ITEMS 13-19 herein.

METHODS

No equipment or apparatus or foundations shall be placed until location stakes have been inspected by the City representative. Final approval of precise locations by the City representative is required.

Install steppers level, plumb, secure and repair and replace damaged units as directed by the City Representative. No splinters, splits or sharp edges shall be expose end grain shall be smooth and level.

After installation and before first use, equipment shall be thoroughly inspected by a certified playground safety inspector. The City shall hire the playground safety inspector. The Contractor shall coordinate all inspections with City representative and Playground Inspector. Contractor shall make any necessary adjustments deemed necessary by the inspector to the play equipment at no additional cost to the City.

MEASUREMENT AND PAYMENT

The contract **LUMP SUM** price paid for **WOODEN STEPPERS** shall be measured and paid for as indicated in the **BID SCHEDULE** for **WOODEN**

STEPPERS complete, in place and approved by the City Representative.. The contract **LUMP SUM** Price shall represent full compensation for furnishing completed installation complete in place, including excavations, concrete footings, geotextile fabric, material compaction and inspections as specified in the plans, these Special Provisions, and as directed by the City Representative.

BID ITEM 60- SYNTHETIC TURF HILL

SCOPE

The synthetic turf surface hill construction consists of installing plastic lumber framing atop crushed aggregate base, filling in and thoroughly compacting the framework, and then securing the synthetic turf to framework. The gradient change at the top and bottom of the slope softens. The most important feature of construction is to be sure that the screws that fasten the turf to the stringers are set flush with the turf matt

MATERIALS

Synlawn SYNTipede 354 synthetic turf or equal with 1 ½" grass zone, Polyethylene w/ Heat Block and hi permeability.

Stringers shall be Structural HDPE custom-engineered extruded lumber manufactured from purified blends of post-consumer, post industrial and/or virgin HDPE (high density polyethylene) base resins. Additional proprietary additives shall be compounded into the stock to meet highest specifications for strength and stiffness.

Synthetic wood stringer set in aggregate base hold the sliding surface in place with A Simpson Strong Tie SDSw 3" long wood screws @ 12" oc. Seams shall be laid evenly and glued per manufacturer's recommendations. Provide structural lumber cut sheets.

METHODS

Slope shall be clear of all organic material. Slope surface shall be smooth, even, and compacted to 90% optimum density. Base shall be laid and compacted to 95% density @ 8% +/- 1% in three lifts. The first lift will match the elevation upon which the stringers will be placed. The other two lifts shall be laid in equal heights with the compacted finish grade 1/16" above the stringers. Screws shall fit snugly against the turf matt and be firmly attached.

MEASUREMENT ANDPAYMENT

The contract **LUMP SUM** price paid for the **SYNHETIC TURF HILL** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing **SYNTHETIC TURF HILL**, complete in place as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the City Representative

BID ITEM 62 -

SCOPE

Faux rock structures, built with glass fiber reinforced concrete, consist of the face of the FAUX ROCK CLIMBING WALL (including the retaining wall backing) and the PINNACLES ROCK CLIMB. .

MATERIALS - GLASS FIBER REINFORCED CONCRETE

A. Portland cement:

1. ASTM C 150, Type I, II or III.
2. For surfaces exposed to view in the finished structure use same brand, type, and source of supply throughout the GFRC production.

B. Aggregates:

1. Sand shall be clean, uncoated and strong grained silica or approved equal with a history of successful use in GFRC. Sand shall be a blend of 30 and 60 sieve. Beach sand or any sand containing high amounts of salt will be rejected.
2. Facing aggregate, if used, should conform to ASTM C-33 except for gradation. Aggregates shall be clean, hard, strong, durable, inert, and free of staining or deleterious material.

C. Water free from deleterious matter that may interfere with the color, setting, or strength of the concrete.

D. Admixtures:

1. Conforming to ASTM C260, ASTM C494 or ASTM C618.

E. Coloring Agent:

1. Shall be harmless to concrete set and strength, stable at high temperature, sunlight fast and alkali resistant.

F. Glass Fiber: AR Type Fiberglass – Nippon Electric or equal.

1. Fibers specifically designed to be compatible with the aggressive alkaline environment of Portland cement based composites or fibers with a history of successful use in a Portland cement based composite that has been modified to be compatible with the fiber.
2. The products of all Portland cement based composites shall submit evidence that the glass composition, Portland cement matrix, or both have been designed for glass fiber reinforced concrete applications.

3. Glass fiber shall be integrated into the slurry at the rate of 5% by weight.

G. Sprayed in Anchors and Loose Attachment Hardware:

1. Grade 40 #3 or as specified by the structural engineer.
2. Expanded metal mesh, stainless steel, 316L, 1/2 16.
3. Nylon zip ties

H. Cement Plaster: Pneumatically placed with mixture of sand and Portland cement, minimum compressive strength of 4,000 psi in 28 days.

I. Molding Materials: At contractor's option to meet execution required.

METHODS

INSPECTION

- A. City Representative to verify that surfaces to receive artificial rockwork are satisfactory for the installation. If unsatisfactory conditions exist, do not commence installation until such conditions have been corrected.

GFRC PANEL FABRICATION

Make latex molds (including backs) of natural rocks as submitted.

Forms for glass fiber reinforced concrete panels shall be rigid and constructed of materials that will result in finished products conforming to the profiles, dimensions and tolerances indicated by the Contract Documents and on the approved shop drawings. Release agents shall be applied and used according to manufacturer's instructions

A. Proportioning and Mixing:

1. All measurements of mix constituents shall be carried out in a careful manner to achieve the desired mix proportions.
2. The glass fiber and cement slurry shall be metered to the spray head at rates to achieve the desired mix proportion and glass content. These shall be checked in accordance with standard procedures described in PCI "Recommended Practice for Glass

Fiber Reinforced Concrete."

3. Cleanliness of equipment and working procedure shall be maintained at all times.

C. Hand Spray Application:

1. Spray operators shall be implemented by trained personnel.
2. A mist coat consisting of the matrix without fiber shall be sprayed onto the form. The thickness of this coating shall generally not exceed 1/8 inch in order to avoid an unreinforced surface.
3. Spray-up of the main body of material shall proceed before any mist coat has set.
4. Application shall be by spraying such that uniform thickness and distribution of glass fiber and cement matrix is achieved during the application process.
5. Consolidation shall be by rolling or such other techniques as necessary to achieve complete encapsulation of fibers and compaction.
6. Control of thickness shall be achieved with pin-gauge or other approved method.
7. All hand-forming of intricate details, incorporation of formers or infill material, and over-spraying shall be carried out before the material has achieved its initial set so as to insure complete bonding.

D. Insert and Embedments:

1. Inserts shall be properly embedded in built up homogeneous GFRC bosses to develop their strength.
2. Panel manufacture shall test inserts to establish test data for use in design.
3. Rigid embedded items bonded to the GFRC shall not create undesirable restraint to volume changes.

E. Tolerances:

1. Thickness:
 - a. Panel thickness 3/8 inch to 5/8 inch.
 - b. Panel sizes shall be delivered to job site in pieces no less than 3

feet by 6 feet.

- F. Finishes: Exposed face of panels to match approved sample.
- G. Curing:
 - 1. Immediately after the completion of spraying of the panel, a curing method shall be used to ensure sufficient strength for removing the units from the form.
 - 2. After initial curing, remove panel from form and place in a controlled curing environment. Panels shall be kept continuously wet for a minimum of 7 days in accordance with manufacturer's standard curing practice. The temperature shall be maintained between 60°F and 110°F during this period.
- I. Panel Identification:
 - 1. Mark each GFRC panel to correspond to identification mark on model for panel location.
 - 2. Mark each GFRC panel with date cast.
- J. Acceptance: GFRC units which do not meet the color and texture range or the dimension tolerances may be rejected at the option of the Owner's representative, if they cannot be satisfactorily corrected.

ERECTION OF GFRC UNITS

- A. Unloading Areas and Access: Clear, well-drained unloading areas and road access around and in the building (where appropriate) shall be provided and maintained by the General Contractor to a degree that the hauling and erection equipment for the GFRC units are able to operate under their own power.
- B. Safety Aspects: The erector shall provide adequate barricades, warning lights or signs to safeguard traffic in the immediate areas of hoisting and handling operations.
- C. Setting:
 - 1. GFRC units shall be lifted with suitable lifting devices at points provided by the

manufacturer. Place cast rock panels into proper position (referring to numbered photographs, molds, and panels) shimmying and bracing as necessary, and wire-tie or weld cast-in steel reinforcing rod anchors to supporting steel reinforcing bar grid work, then shoot seams between panels and vertical or horizontal line for formation.

- D. Supports and Bracing: The erector shall provide temporary supports and bracing as required to maintain position, stability and alignment as units are being permanently connected.

- F. Fastening:
 - 1. Fasten GFRG units in place by bolting or welding.

STEEL REINFORCING

Clean reinforcement of any materials, which reduce or destroy bond with concrete.

- 1. Touch-up bare exposed metal surfaces of epoxy coated rebar with similar coating approved by manufacturer.
- 2. Accurately position, support and secure reinforcement against displacement by construction or concrete placement operations. Locate and support reinforcing by runners, bolsters, spacers and hangers, as required.

Notify Owner upon completion of reinforcing and prior to placing shotcrete.

PROVISION FOR OTHER TRADES

General:

- 1. Provide openings in themed work to accommodate work of other trades. Determine size and location of openings, vents, weep holes, recesses, and conduits from trades providing such items.

All non-sleeved piping shall be set by the appropriate contractor.

2. Sleeves shall be provided by the appropriate contractor and installed by the Theming Contractor.
3. Accurately place and securely support items built into forms.

PLACING SHOTCRETE

- A. General: Place shotcrete using suitable delivery equipment and procedures that will result in shotcrete in place meeting the requirements of this specification. Refer to ACI Standard 506-66, Recommended Practice for Shotcreting.
- B. Placement Techniques:
 1. Control thickness, method of support, air pressure, and/or water content of shotcrete to preclude sagging or sloughing off. Discontinue shotcreting or provide suitable means to screen the nozzle stream if wind or air currents cause separation of the nozzle stream during placement.
 2. Dampen absorptive substrate surfaces prior to placement of shotcrete.
 3. Broom or scarify the surface of freshly placed shotcrete to which, after hardening, additional layers of shotcrete are to be bonded. Dampen surface just prior to application of succeeding layers.
 4. First, fill with sound material corners and any area where rebound cannot escape or be blown free. Complete the corners between the web and the flanges of structural steel before application to the flat areas.
 5. Provide a supply of clean, dry air adequate for maintaining efficient nozzle velocity for all parts of the work and, if required, for simultaneous operation of a suitable blow pipe or clearing away rebound.
- C. Placement Around Reinforcement:
 1. Hold the nozzle at such distance and

angle to Place material behind reinforcement before any material is allowed to accumulate on its face. In the dry-mix process additional water may be added to the mix when encasing reinforcement to facilitate a smooth flow of material behind the bar.

2. Do not place shotcrete through more than one layer of reinforcing steel rods or mesh in one application unless demonstrated by preconstruction tests that steel is properly encased. Test to ascertain if any voids or sand pockets have developed around or behind reinforcement by probing with an awl or other pointed tool; or other suitable means.

D. Cover of Reinforcement:

1. Place shotcrete to provide the following minimum cover over reinforcement:
 - a. For shotcrete linings, reinforcement in slabs and walls, or coatings: 3/4 inch for fine aggregate shotcrete and 1-1/2 inches for coarse aggregate shotcrete.
2. Minus tolerance on cover shall be 3/8 inch, except that it shall not be greater than one-third of the specified cover.

REPAIR OF SURFACE DEFECTS

- A. Remove and replace shotcrete which lacks uniformity, exhibits segregation, honeycombing, or lamination, of which contains any dry patches, slugs, voids, or sand pockets. Remove and replace damaged in-place shotcrete.
- B. Repair core holes in accordance with Chapter 9 of ACI 301. Do not fill core holes with shotcrete.
- C. Replace any shotcrete which subsides after

placement.

JOINTS

A. Construction Joints:

1. Taper construction joints to a shallow edge form, about 1 inch thick, except where the joint will be subjected to compressive stress. In this case, use non-tapered joints and take special care to avoid or remove trapped rebound at the joint.
2. The entire joint shall be thoroughly cleaned and wetted prior to the application of additional shotcrete.
3. Make joints perpendicular to the main reinforcement. Continue reinforcement across joints.

B. Control Joints: Install control joints in accordance with the shop drawings. Do not extend reinforcement or other embedded metal items, which are bonded to the shotcrete continuously through control joints.

A.

B.

PREPARATION OF SURFACES FOR TEXTURE COA

Moving or dynamic cracks should be treated as expansion joints with HEY'D K-11 and an elastic sealant in accordance with sealant manufacturer's instruction.

Construction Joints: Construction joints shall be designed and located by Shotcrete Fabricator and approved by Owner Representative.

C. Piping Preparation · Cut back around pipes at least 1 inch to give sufficient depth and clean off thoroughly and treat as an expansion joint with elastic sealant bonded to both materials in accordance with sealant manufacturer's instruction.

Next, apply to pipe a key coat bonding agent mixed 1:1 with water and gauged with a 1:1 sand to cement mix and leave for 24 hours

Next, dampen the area and apply two coats of the cementitious water proofer at the rate of 4 pounds per square yard. Flush the cavity with mortar (3:1 sand to cement mixed with a 1part solution of bonding agent and water).

Cant Strips and Coves between Horizontal and Vertical Areas: Where cant strips or coves are specified, apply cementitious water proofer to behind the cove strip. Mortar (1:1) cement to sand mixture mixed with a solution of 1:5 bonding agent to water should be used for making coves and cants to insure adequate bonding to the surface areas.

CURING AND PROTECTION

A. Initial Curing: Immediately after finishe in, keep shotcrete continuously moist for at least 24 hours.

Ponding or continuous sprinkling.

Absorptive mat or burlap fabric, or other covering kept continuously wet.

Final Curing: Continue the method used in initial curing or use a different method BY THE Owner's representative.

Formed Surface. If forms are to be removed during curing period, immediately use one of the curing materials or methods listed in this section. Continue such curing for the remainder o the curing period.

Duration of Curing: Continue curing for the first 7 days after shot -creting, or for the first 3 days if high-early-strength is obtained. During the curing period maintain shotcrete above 40° and in a moist condition as specified in this section.

Natural Curing: Natural curing may be allowed when authorized by the Owner's Representative if atmospheric conditions surrounding the shotcrete are satisfactory, such as when the relative humidity is at or above 85%.

PAINTING AND SEALING

A Following acceptance of the work, all GFRC surfaces shall be thoroughly brushed and washed with clear water to remove any loose dust, contaminants, or material that may inhibit penetration of the surface applied colors.

Color shall be applied to conform to approved samples and shall include treatments that represent no less than these regimes:

Base color of rock,

Weathered surface color of same rock

Medium weathered surface

Contrasting element of rock mineralization or other highlight

Overall organic wash and staining

Upon acceptance of color, completely seal work with Porous Plus as per manufacturer's recommendation.

CLEANING

A During progress of the work, remove from project site all discarded materials, rubbish, and debris resulting from the work.

Upon completion, clean all surfaces which have become soiled or coated as a result of work of this section, using proper methods which will not scratch or otherwise damage finished **surfaces**.

For cleaning, use only products and techniques acceptable to manufacturer of products being cleaned.

BID ITEMS 61 - FAUX ROCK CLIMBING WALL

The contract price paid for **FAUX ROCK CLIMBING WALL** shall be **LUMP SUM** according to the bid schedule. It shall include full compensation for the **LUMP SUM** bid item constructed and approved, complete and in place. The **BID SCHEDULE LUMP SUM** price paid shall include full compensation for all finished accessories and all appurtenances required for a complete functioning amenity system and no additional compensation will be allowed therefore.

BID ITEM 62- MISTER SYSTEM

SCOPE

A system of high pressure misters shall be installed along the edges of the creek bed and between rocks within the creek bed. It is the responsibility of the general contractor to coordinate the work of the faux rock fabricator, the concrete contractor, the Mister installer and the irrigation contractor. This "mister system" will be turned on and off by the irrigation controller.

MATERIALS

System piping shall be looped 1/4" copper tubing wrapped with black insulating tape and sleeved with pvc pipe. All curves shall be smooth and sleeved in pvc ells. Connectors, ells and tees shall be stainless steel or copper. The stainless steel nozzle connectors shall be set in mortar 1" in back

of the nozzle emitter. Provide shop drawings per manufacturer's recommendations from Fogco Systems, Inc. to the Project Engineer.

The pump shall be a pulley operated 2 gpm 1.5 hp, 110-single phase pump capable of producing a mister pressure of 1000 psi for up to 64 nozzles. The pump shall be UL approved, outdoor rated and joints will be sweated. A system of high pressure misters shall be installed along the edges of the creek bed. This "mister system" will be run by the irrigation controller. The pump shall sit atop a 30" x 20" conc pad sleeved with conduit to receive electrical and water utilities. Water supply shall be a ¾" headed copper pipe. Entire assembly shall be caged.

Nozzle orifices shall range in size between .12 and .20, Nozzle Mortar shall be integrally colored as approved by the Project Engineer for filling drilled holes in the rock and wedging nozzle connectors between boulders.

METHODS

The installing sub-contractor shall have a minimum of 5 years experience installing mister or fogger systems with copper tubing. Bid shall include drilling ten holes through boulders for placement of nozzles.

The Contractor shall trim laterals coming off the loop as directed by the City Representative. Connectors and nozzles shall be embedded in mortar as directed by the Project Engineer.

MEASUREMENT AND PAYMENT

MISTER SYSTEM shall be measured and paid for at the contract **LUMP SUM** price as indicated in the **BID SCHEDULE**. The contract **LUMP SUM** Price shall represent full compensation for furnishing completed installation of the **MISTER SYSTEM**, fully functional, including all labor, equipment, and materials necessary complete in place, as specified in the Standard Specifications and these Special Provisions, and as directed by the City Representative.

BID ITEM 63 – WATER PLAY AREA

SCOPE

The water play area components include a poured in place concrete creek bed bounded by natural rock on each side.

Water play area components include natural rock, a concrete flatwork creek bed with embedded boulders, an irrigation controlled Mister System, natural boulder and mortar bowls with hand pumps and water gates that control the flow of water along a 2" deep meandering dendritic water

path. The water play area terminates on the low side into a concrete drainage box.

The water play area abuts a climbing wall. The contractor shall submit a detailed sequence and timeline for the construction of the climbing wall, the water play area and the mounding on each side of the water play area. The sequence and timeline are to be approved by the City Representative, and at the contractors request, the City representative will collaborate with the contractor on development of the timeline/sequence document.

MATERIALS

UTILITIES

The water play area requires water, sewer and electrical stub outs. Confirm installation of utilities prior to placement of natural boulders.

CONCRETE

Concrete shall be according CAST IN PLACE CONCRETE STRUCTURES in As defined in these specifications above BID ITEM 13 with these exceptions:

1. The concrete shall be 4" thick
2. Integral color per plans

BOULDERS

Boulders shall be according to BOULDERS as defined in these specifications in BID ITEM 6

TREE GRATE

Tree grates shall be: #OT-T24; the grate is to be complete with matching steel angle frame and custom welded rail per plan details. There shall be no opening for a tree. Grate finish is to be supplied with matte powder coated finish in 'Brahman Beige' color. The grate shall have an infilled center in frame. Each edge has a custom curb for wheel chair protection

METHODS

Install grate where indicated on plans flush and match creekbed slope with surrounding pavement surface. **TREE GRATE** shall be placed in the water play area to maintain ADA accessible circulation path width. It shall be set in a frame

Install steel angle frame in concrete flush and leveled with surrounding paving surface, maintain flush and match creek bed gradient at all times. Frames MUST NOT slope in more than one direction. Use spreaders or stakes to keep frame from being distorted by concrete pressure, and clean concrete and debris from frame prior to tree grate installation. If needed, grind pads on underside of tree grates to level and prevent rocking. Apply cathodic rust arrestor coating per manufacturer's recommendations.

MEASUREMENT AND PAYMENT

The **WATER PLAY AREA** shall be measured and paid for on a **LUMP SUM** basis as indicated in the **BID SCHEDULE**. The contract **LUMP SUM** Price shall represent full compensation for furnishing completed installation including all labor, equipment, and materials necessary to install the **WATER PLAY AREA**, complete in place. However, Boulders, Water play area faux rock, and Mister System are not a part of this Bid Item and shall be paid as listed in BID ITEM 6, BID ITEM 83 and BID ITEM 84 in these specifications.

WATER PLAY AREA can be billed on a monthly basis according to the approved percentage of completion as determined by the City Representative. No more than 75% of the **LUMP SUM** price shall be paid until the **WATER PLAY AREA** and its related bid items, as listed herein, are fully functional and approved by the City Representative.

BID ITEM 64- POURED IN PLACE SURFACING (INCLUDING BASE)

SCOPE

This section consists of furnishing all labor, materials and equipment required to install the poured in place safety surfacing complete as specified. The color mix blend (as specified per construction plans) of Surface America Playbound Poured-in-Place Playground Surfacing System: Super-7 (when aromatic urethane for the top surface is specified) with a 7-year warranty, represented by Ross Recreation (831) 689-9110, shall be installed on site as per manufacturer's recommendations and this section at the locations shown on the Contract Drawings and as directed by the City representative. Contractor shall be responsible for site installation of the surfacing and for furnishing and installing base material as required. All work and equipment provided shall be subject to approval of the City representative.

REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers-Tension.
2. ASTM D624 Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.

3. ASTM D2047 Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine.
4. ASTM D2859 Standard Test Method for Flammability of Finished Textile Floor Covering Materials.
5. ASTM E303 Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester.
6. ASTM F1292 Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment.
7. ASTM F1951 Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment.

B. Performance Requirements: Provide a 2 layer rubber-urethane playground surfacing system which has been designed, manufactured and installed to meet the following criteria:

1. Shock Attenuation (ASTM F1292):
 - a. Gmax: Less than 200.
 - b. Head Injury Criteria: Less than 1000.
2. Flammability (ASTM D2859): Pass.
3. Tensile Strength (ASTM D412): 60 psi (413 kPa).
4. Tear Resistance (ASTM D624): 140%.
5. Water Permeability: 0.4 gal/yd²/second.
6. Accessibility: Comply with requirements of ASTM F1951.

SUBMITTALS

Submit two (2) copies of the manufacturer's product data and installation instructions.

Submit manufacturer's standard verification samples of 9"x9" min.

Contractor shall provide certificate of qualifications of the playground surfacing installer and warranty documents specified herein.

Certification by manufacturer that installer is an approved applicator of the playground surfacing system and is International Play Equipment Manufacturers Association (IPEMA) certified.

MANUFACTURER'S WARRANTY

Submit, for City Representative's acceptance, manufacturer's standard warranty document executed by authorized company official.

Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under contract documents.

Proper drainage is critical to the longevity of the Playbound Poured-in-Place surfacing system. Inadequate drainage will cause premature breakdown of the poured system in affected areas; and void the warranty.

Warranty period: Super-7 (when aromatic urethane for the top surface is specified): 7 years from date of completion of work.

MATERIALS

A. Manufacturer: Surface America, Inc.

1. Contact: PO Box 157, Williamsville, NY 14231; Telephone: (800) 999-0555, (716) 632-8413; Fax: (716) 632-8324; E-mail: info@surfaceamerica.com; website: <http://www.surfaceamerica.com>.

B. Proprietary Products/Systems. Poured-in-place playground surfacing system, including the following:

1. PlayBound Poured-In-Place Primer:

a. Material: Urethane.

2. PlayBound Poured-in-Place Basemat:

a. Material: Blend of 100% recycled SBR (styrene butadiene rubber) and urethane.

b. Thickness: varies depending upon ASTM F1292 requirements for critical fall heights. Coordinate with play equipment installer and with working drawings.

c. Formulation Components: Blend of strand and granular material.

3. PlayBound Poured-In-Place Top Surface:

a. Material: Blend of recycled EPDM (ethylene propylene diene monomer) rubber and aromatic urethane binder.

b. Thickness: Nominal 1/2" (12.7 mm), minimum 3/8" (9.5 mm), maximum 5/8" (15.9 mm).

c. Color Combination: 50% Beige, 50% Black.

d. Dry Static Coefficient of Friction (ASTM D2047): 1.0.

e. Wet Static Coefficient of Friction (ASTM D2047): 0.9.

f. Dry Skid Resistance (ASTM E303): 89.

g. Wet Skid Resistance (ASTM E303): 57.

C. Required mix proportions by weight:

1. Basemat: 16+% urethane (as ratio: 14% urethane divided by 86% rubber). 14% urethane, 86% rubber (based on entire rubber & urethane mix).

2. Top Surface: 22% urethane (ratio: 18% urethane divided by 82% rubber). 18% urethane, 82% rubber (based on entire rubber & urethane mix).

Geotextile fabric shall be synthetic, nonwoven fabric made from staple filaments of polypropylene fiber that are needle punched and heat set. Textile shall be light weight @ 5 oz/sy +/- 2 oz.

METHODS

Contractor shall utilize an installer approved and trained by the manufacturer of the playground surfacing system, having experience with other projects of the scope and scale of the work described in this section.

Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

Store materials protected from exposure to harmful environmental conditions and at a minimum temperature of 40 degrees F and a maximum temperature of 90 degrees F.

Install surfacing system when minimum ambient temperature is 40 degrees F and maximum ambient temperature is 90 degrees F. Do not install in steady or heavy rain.

Comply with the instructions and recommendations of the playground surfacing manufacturer.

A. Substrate preparation must be in accordance with surfacing manufacturer's specification. New asphalt must be fully cured – up to 30 days. New concrete must be fully cured – up to 7 days.

B. Proper drainage is critical to the longevity of the PlayBound Poured-in-Place surfacing system. Inadequate drainage will cause premature breakdown of the poured system in affected areas; and void the warranty.

C. Surface Preparation: Using a brush or short nap roller, apply primer to the substrate perimeter and any adjacent vertical barriers such as playground equipment support legs, curbs or slabs that will contact the surfacing system at the rate of 300 ft²/gal (7.5 m²/L).

D. Do not proceed with playground surfacing installation until all applicable site work, including substrate preparation, fencing, playground equipment installation and other relevant work, has been completed.

E. Basemat Installation:

1. Using screeds and hand trowels, install the basemat at a consistent density of 29 pounds, 1 ounce per cubic foot (466 kg/m³) to the specified thickness.

2. Allow basemat to cure for sufficient time so that indentations are not left in the basemat from applicator foot traffic or equipment.

3. Do not allow foot traffic or use of the basemat surface until it is sufficiently cured.

F. Primer Application: Using a brush or short nap roller, apply primer to the basemat perimeter and any adjacent vertical barriers such as playground equipment support legs, curbs or slabs that will contact the surfacing system at the rate of 300 ft²/gal (7.5 m²/L).

G. Top Surface Installation:

1. Using a hand trowel, install top surface at a consistent density of 58 pounds, 9 ounces per cubic foot (938 kg/m³) to a nominal thickness of 1/2" (12.7 mm).
 2. Allow top surface to cure for a minimum of 48 hours.
 3. At the end of the minimum curing period, verify that the top surface is sufficiently dry and firm to allow foot traffic and use without damage to the surface.
 4. Do not allow foot traffic or use of the surface until it is sufficiently cured.
- H. Protect the installed playground surface from damage resulting from subsequent construction activity on the site.

MEASUREMENT AND PAYMENT

The contract price paid for **POURED IN PLACE SURFACING** shall be measured and paid for at the contract Unit Price as indicated in the **BID SCHEDULE** per **SQUARE FOOT**. The contract Unit Price shall represent full compensation for furnishing completed installation of all **POURED IN PLACE SURFACING** within the project limits including all labor, equipment, and materials necessary to install the playground surfacing complete in place, including base materials and inspections as specified in the Standard Specifications and these Special Provisions, and as directed by the City Representative.

BID ITEM 65 - ENGINEERED WOOD CHIP SURFACE

SCOPE

This section consists of furnishing all labor, materials and equipment required to install the engineered wood chips surfacing complete as specified. The engineered wood chips surfacing, shall be installed on site as per this section at the locations shown on the Contract Drawings and as directed by the City representative. Contractor shall be responsible for site installation of the surfacing and for furnishing and installing base material and wear mats under all swings, slide exits and all other wear areas including sliding poles to ensure compliance with the Federal Accessibility Law of March 15, 2012. All work and equipment provided shall be subject to approval of the City representative.

REFERENCES

- A. American Society for Testing and Materials (ASTM):
1. ASTM F2075 Standard Specification for Engineered Wood Fiber.
 2. ASTM F1292 Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment.
 3. ASTM F1951 Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment.

SUBMITTALS

Submit two (2) copies of the manufacturer's product data and installation instructions.

Submit sample of engineered wood chips and wear mat to City Representative for approval.

Manufacturer must provide proof of IPEMA certification. "In the interest of public playground safety, IPEMA provides an independent laboratory which validates a manufacturer's certification of conformance to ASTM F1292-04 and ASTM F2075-04. A list of current validated products, their thickness and critical heights may be viewed at www.ipema.org."

MATERIALS

Provide Engineered Wood Fiber to a compacted depth of approximately 12 inches.

The amount of Engineered Wood Fiber necessary to provide the approximate depth, after compaction, is as follows:

Quantities shown are for a 1,000 sq. ft. playground:

Depth	Quantity
8"	38 cubic yards
10"	42 cubic yards
11"	46 cubic yards
12"	50 cubic yards

Provide one (1) Wear Mat (minimum size: 36" x 36" x 1.5") with 2" beveled edge on all sides under each swing seat, tire swing, slide exit, and sliding pole. Double and triple slides may require multiple wear mats. Total quantity required is nine (9). Contractor shall verify quantity per working drawings.

1. Surfacing shall be IPEMA-CERTIFIED Engineered Wood Fiber. Standard wood chips or bark mulch will not be acceptable. Product must be manufactured for playground use of ground wood fiber size-controlled softwoods and/or hardwoods which average 1"-2" in length and contain a maximum of 15% fines to aid in compaction.
2. Product is to have minimal bark and to be free of twigs, leaf debris and other organic material, and be non-flammable.
3. Supplier must provide test results for Engineered Wood Fiber and Wear mats for impact attenuation in accordance with ASTM F 1292 *Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment*. Results must be provided for new and for 12-year-old Engineered Wood Fiber material.

4. Testing of Engineered Wood Fiber in accordance with **ASTM F 1292** must show G-max values of less than 155G for the 8" thick system, or 120G for the 12" system at 12' drop heights, and HIC values of less than 1,000 for both new and 12-year-old material.
5. Supplier must provide test results for the Engineered Wood Fiber in accordance with **ASTM F 2075** *Specification for Engineered Wood Fiber For Use as a Playground Safety Surface Under and Around Playground Equipment*.
6. Testing of wear mats in accordance with **ASTM F 1292** must show values of less than 200G and HIC values of less than 1,000 for a 3' drop height.
7. Supplier must provide test results in accordance with **ASTM F 1951**, *Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment*.
8. Supplier must certify that the surface meets the intent of the *Americans with Disabilities Act (ADA)*.
9. Supplier must provide product liability insurance certificate with project owner named as certificate holder, prior to delivery.

Geotextile fabric shall be synthetic, nonwoven fabric made from staple filaments of polypropylene fiber that are needle punched and heat set. Textile shall be light weight @ 5 oz/sy +/- 2 oz.

METHODS

Install the Engineered Wood Fiber and wear mats in accordance with manufacturer's instructions after playground equipment, concrete header, and drainage system installation/construction is complete.

Avoid contamination of the Engineered Wood Fiber with sand, gravel, mud or native soil.

Maintain Engineered Wood Fiber in accordance with manufacturer's instructions.

When gravel drainage is used, place drainage gravel on a layer of geotextile fabric. Overlap all seams a minimum of 3 inches. Slit fabric around equipment uprights. Where possible, overlap all slits with next piece of fabric.

Cover drainage system or earth substrate with geotextile fabric and follow above stated requirements for fabric overlap and installation around play equipment.

Install the Engineered Wood Fiber to the proper depth, mounding in the center of the play areas of the playground. Extra materials will be

provided to allow for compaction. Installer should be careful not to travel on the geo-textile fabric or turn sharply on the engineered wood fiber. Install all the material delivered and note that surfacing needs to be compacted to be considered handicapped accessible.

Install wear mats in excessive wear areas, such as slide exits, under swings and sliding poles.

MEASUREMENT AND PAYMENT

The contract price paid for **ENGINEERED WOOD CHIP SURFACE** shall be measured and paid for at the contract Unit Price as indicated in the **BID SCHEDULE** per **CUBIC YARD**. The contract Unit Price shall represent full compensation for furnishing completed installation of all **ENGINEERED WOOD CHIP SURFACE** within the project limits including all labor, equipment, and materials necessary to install the playground surfacing complete in place, including base materials and inspections as specified in the Standard Specifications and these Special Provisions, and as directed by the City Representative.

BID ITEM 66 - PLAY SAND

SCOPE

This section consists of furnishing all labor, materials and equipment required to install the play sand complete as specified. The play sand shall be installed on site as per this section at the locations shown on the Contract Drawings and as directed by the City representative. All work and equipment provided shall be subject to approval of the City representative.

REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM F1292 Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment.
2. ASTM F2223 Standard Guide for ASTM Standards on Playground Surfacing.

SUBMITTALS

Documentation from the source as to the material sold, quantity, destination, etc. shall be provided to the City Representative.

Contractor shall submit samples of the material from the source plus gradation test results from an independent consultant to the City Representative.

MATERIALS

The sand shall be a natural, evenly graded, washed sand of rounded particles, free of fines, clay, silt, stones, organic materials, or other deleterious material, intended for playground use.

Sand shall meet the following gradation specifications:

Sieve Size	Percent Passing
9.5 mm	100%
6.7 mm	100%
4.75 mm (#4)	99.9%
2.36 mm (#8)	97-100%
1.18 mm (#16)	70-90%
600 um (#30)	25-60%
300 um (#50)	5-25%
150 um (#100)	0-3%
75 um (#200)	0-1%

Geotextile fabric shall be synthetic, nonwoven fabric made from staple filaments of polypropylene fiber that are needle punched and heat set. Textile shall be light weight @ 5 oz/sy +/- 2 oz.

METHODS

The contractor is to supply, deliver, place and spread sand within the designated play sand perimeter to the minimum depth listed on the working drawings as measured at any point within the perimeter after surface has been left smooth, uniform, firm against deep foot printing, and with a fine loose texture or at a compaction of 85% SPD or as otherwise noted.

Co-ordinate work in this section with work in all other sections.

The Contractor shall supervise all work in this section until completion.

The play sand shall be stored on site so as not to impede the daily construction activity, walkways or street and in such a way as to avoid contamination.

The area the play sand is to be installed shall cleared of debris and the subgrade is to be as per the approved drawings and shall be approved by the City Representative prior to installation of sub-drains and sand. The subgrade shall have all ruts filled and levelled and loose fill levelled and/or removed.

Sand shall be spread evenly over the entire surface within the designated play sand perimeter, yielding an even, level surface.

Sand shall be placed in such a manner as to avoid contamination by existing sand or other material.

Depth of sand is to be maintained until Final Acceptance is given by the City.

MEASUREMENT AND PAYMENT

The contract price paid for **PLAY SAND** shall be measured and paid for at the contract Unit Price as indicated in the **BID SCHEDULE PER TON**. The contract Unit Price shall represent full COMPENSATION for furnishing completed installation of all **PLAY SAND** within the project limits including all labor, equipment, and materials necessary to install the playground surfacing complete in place, including base materials and inspections as specified in the Standard Specifications and these Special Provisions, and as directed by the City Representative.

BID ITEM 67 - TENNIS COURT- ASPHALT PAVED COURT CONSTRUCTION

Slope Requirement

All excavating, filling and grading requirements and compacting work of the subbase should be performed so that the finished subgrade is 4" above the surrounding ground and slopes not less than 0.83% (1:120) and not more than 1% (1:100). The court must slope on a true plane, as illustrated on the plans

Perimeter Edging

An edging of steel or treated wood shall be installed around the entire perimeter of the court area. Top elevation of the edging should be approximately 1/2" below the finished grade level and the court's surface should be tapered out to meet it.

Aggregate Base Course

A 6" base course shall meet applicable ASTM specifications. The material shall be spread by methods and in a manner that produces a uniform density and thickness. The material thus spread should be compacted to 95% minimum Proctor Test with equipment that provides uniform density. Surface of the base course as compacted should not vary more than 1/2" from the true plane of the court.

Intermediate Pavement Course

A leveling course of a hot plant mix having a maximum aggregate size of 3/8" to 3/4" in accordance with specifications of the Asphalt Institute should be constructed over the base course.

This hot plant mix should be spread and compacted by methods and in a manner that produces a uniform density and thickness. The finished intermediate course should not vary more than 1/4" in 10', when measured in any direction.

Asphaltic Surface Course

General Description

A surface course of a hot plant mix having a maximum aggregate size of 3/8" and a minimum aggregate size of 1/4" should be constructed over the hot mix intermediate course to a compacted thickness of not less than 1".*

Mix Design:

Aggregate	
<u>Screen</u>	<u>% Passing</u>
1/2	100
3/8	90-100
#4	55-85
#8	32-67
#50	7-23
#200	2-10

Liquid Asphalt Bitumen: Minimum 5.5% by weight.

Aggregate Type: Crushed stone, gravel, shale, limestone, etc. Foreign materials, i.e., pyrite, clay, ferrous compounds, dirt and organic material are not acceptable.

Cure Time: Minimum 14 days before application of playing surface.

Voids Content: In no case should void content exceed 7%.

Spreading and Compacting

This hot plant mix should be spread and compacted by methods and in a manner that produces a uniform density and thickness.

Surface Tolerance

The finished surface of the court should not vary more than 1/8" in 10' when measured in any direction.

COURT SURFACING

1.1 GENERAL DESCRIPTION A. Textured acrylic surfacing for tennis court and basketball court.

1.2 QUALITY ASSURANCE

- A. Surfacing shall conform to the guidelines of the ASBA for planarity.
- B. All surface coatings products shall be supplied by a single manufacturer.
- C. The installer shall have 5 years of court surfacing experience.

1.3 SUBMITTALS

- A. Manufacturer specifications for components, color chart and installation instructions. Colors shall be selected at that time.
- B. Proof of experience certificate from the surface system manufacturer.
- C. Reference list from the installer of at least 5 projects of similar scope done in the past 3 years.
- D. Current Material Safety Data Sheets (MSDS).
- E. Product substitution: If other than the product specified, the contractor shall submit at least 7 days prior to the bid date a complete type written list of proposed substitutions with sufficient data, drawings, samples and literature to demonstrate to the owners satisfaction that the proposed substitution is of equal quality and utility to that originally specified.

1.4 MATERIAL HANDLING AND STORAGE

- A. Store materials in accordance with manufacturer specifications & MSDS.
- B. Deliver product to the site in original unopened containers with proper labels attached.

1.5 GUARANTEE

- A. Provide a guarantee against defects in the materials and workmanship for a period of one year from the date of substantial completion. 1.7

PRODUCTS

2.1 MANUFACTURERS

1. California Products Corp., Andover, MA. 01810 / DecoTurf, www.decoturf.com;
2. SportMaster Sport Surfaces 1-800-3261994
3. Or equal.

2.2 MATERIALS –SportMaster, Deco Turf or approved equal for all products listed herein:

- A. Patching Mix (California Court Patch Binder) - for use in patching cracks, holes, depressions and other surface imperfections.
- B. Crack Filler (California Crack Filler) - for use in filling fine cracks.
- C. Concrete Preparer is a specially formulated acid heat for use in neutralizing the concrete in preparation for the DecoTurf System.
- D. Acrylic Wearing Surface (Acrylotex/DecoColor MP) – for use as the finish color and texture. DecoColor MP and Acrylotex are blended at the job site to achieve the correct surface texture.
- E. Line Paint (California Line Paint) – for use as the line marking on the court/play surface.
- F. Water – for use in dilution/mixing shall be clean and potable.

2.3 MATERIAL SPECIFICATIONS – Deco Turf, SportMaster or approved equal for all products listed herein

- A. Court Patch Binder – 100% acrylic resin blended with Portland Cement and silica sand. Weight 8.7-8.9 lbs./gallon
 - B. California Crack Filler – 100% acrylic resin heavily filled with sand. Weight 15 lbs./gallon
 - C. Concrete Preparer – Phosphoric Acid based surface treatment Weight 9.5-9.6 lbs./gallon
 - D. DecoColor MP – 100% acrylic resin (no vinyl copolymerization constituent) with selected light fast pigments. Green shall contain not less than 10% chrome oxide. 1) Percent solids by weight (minimum) 43.0% 2) Weight 10.5./gallon
 - E. Acrylotex I Neutral – 100% acrylic resin blended with DecoColor MP and Portland Cement. Contains not more than 63% rounded silica sand. 1) Percent solids by weight (minimum) 71% 2) Weight 11.9 lbs./gallon
 - F. California Line Paint – 100% acrylic resin (containing no alkyds or vinyl constituents). Texturing shall be rounded silica sand. Weight 12-12.3 lbs./gallon
- All surfacing materials shall be non-flammable and have a VOC content of less than 100g/l, measured by EPA method 24. Local sands are not acceptable in the color playing surface. Sands must be incorporated at the manufacturing location to insure quality and stability. PART 3

EXECUTION

3.1 WEATHER LIMITATIONS

- A. Do not install when rainfall is imminent or extremely high humidity prevents drying.
- B. Do not apply unless surface and air temperature are 50°F and rising.
- C. Do not apply if surface temperature is in excess of 140°F. 3.2

PREPARATION FOR ACRYLIC COLOR PLAYING SYSTEM

- A. Clean surfaces of loose dirt, oil, grease, leaves, and other debris in strict accordance with manufacturer's directions. Pressure washing will be necessary to adequately clean areas to be coated. Any areas previously showing algae growth shall be treated with OxiCourt or approved product to kill the organisms and then be properly rinsed.
- B. Holes and cracks: Cracks and holes shall be cleaned and a suitable soil sterilant, as approved by the owner, shall be applied to kill all vegetation 14 days prior to use of Court Patch Binder according to manufacturer's specifications.
- C. Depression: Depressions holding enough water to cover a five cent piece shall be filled with Court Patch Binder Patching Mix: 3 gallons of Court Patch Binder, 100 lbs. 60-80 silica sand, 1 gallon Dry Portland Cement (Type I). The contractor shall flood all the courts and then allow draining. Define and mark all areas holding enough water to cover a nickel. After defined areas are dry, prime with tack coat mixture of 2 parts water/1 part Court Patch Binder. Allow tack coat to dry completely. Spread Court Patch Binder mix true to grade using a straight edge for strike off. Steel trowel or wood float the patch so that the texture matches the surrounding area. Never

add water to mix. Light misting on surface and edges to feather in is allowed as needed to maintain work ability. Allow to dry thoroughly and cure.

NO WORK FROM THIS STAGE ON SHALL COMMENCE UNTIL AN INSPECTOR HAS ACCEPTED THE SURFACE.

D. Acid Treatment: Concrete Preparer shall be applied to all uncoated concrete surfaces at the rate of .01 to .012 gallon per square yard. Dilute 1 gallon of Concrete Preparer with 4 gallons of potable water. Apply liberally to the surface and spread with a soft hair push broom. After the surface has dried remove any dust or latent material.

APPLICATION OF ACRYLIC COLOR PLAYING SURFACE

All areas to be color coated shall be clean, free from sand, clay, grease, dust, salt or other foreign matters. The Contractor shall obtain the Engineer's approval, prior to applying any surface treatment. B. Blend Acrylotex and DecoColor MP with a mechanical mixer to achieve a uniform mixture. The mix ratio shall be: Acrylotex 30 gallons DecoColor MP 10 gallons Water 15 gallons Portland Cement 1-2 gallons One gallon equals approximately 22 pounds dry Portland cement. Additional Portland cement will provide further hardness and faster drying. Portland Cement is optional on asphalt, but it will improve wear resistance. White Portland Cement is preferred. The diluted material shall be homogeneous. Segregation before or during application will not be permitted. A mechanical drill mixer is recommended and mixture should be stirred until homogeneous. Periodic mixing should take place as job progresses to ensure consistent application. C. Application shall be made by 50 durometer rubber faced squeegees. The mixture should be poured on to the court surface and spread to a uniform thickness in a regular pattern. A. A total of 2 applications of textured Acrylotex/DecoColor MP mix shall be made to achieve a total application rate of not less than .10 gal./sy/coat. No application should be made until the previous application is thoroughly dry.

3.4 LINE PAINTING

A. The area to be marked shall be taped to insure a crisp line. The California Line Paint shall have a texture similar to the surrounding play surface. Application shall be made by brush or roller at the rate of 150-200 sf/gal.

3.7 CLEAN UP

A. Remove all containers, surplus materials and debris. Dispose of materials in accordance with local, state and Federal regulations. B. Leave site in a clean and orderly condition.

A. MEASUREMENT AND PAYMENT

The Contract **LUMP SUM** Price paid for **TENNIS COURT AND BASKETBALL COURT** includes construction of the court, fence and sleeved basketball post footings at each end of the tennis court. Measurement shall include full compensation for furnishing all labor, materials including footings, tools, equipment, surfacing and incidentals, as specified in the Standard Specifications, in the special provisions, and as indicated on the plans.

BID ITEM 68 - BASKETBALL COURT – ASPHALT PAVED

SCOPE

Concrete construction consists of at-grade flatwork, Posts, backboard, hoop and net, and surfacing. The basketball courts and concrete footings for posts and other appurtenances as drawn on the plans and specified herein.

MATERIALS

Concrete shall be as specified in the section CAST IN PLACE CONCRETE STRUCTURES

Ac Paving and Surfacing shall be as specified in the section BID ITEM 68 – TENNIS COURT – ASPHALT PAVED

HOOP, POST AND BACKBOARD

Provide a complete, top quality equipment system from Legend fixed hoop system from Basketball-Goals.com LEGEND SERIES or equal. Confirm these appurtenances with the City mayor.

Install heavy 6" square, 3/16" thick steel tubing, Fixed Height Basketball Goal post. Set post center 9 inches in back of play surface edge. The extension arm shall be attached to the vertical post via six 5/8" high tensile bolts. the extension arm shall be bolted at the height approved by the City Representative. any height along the post. Acrylic backboard and heavy duty flex rim with steel chain.

VAPOR BARRIER

Two (2) layers of 6 mil polyethylene sheeting shall be placed to cover entire area under slab.

FINISHING

Surface Course Slab preparation. The concrete shall be completely cured before any surface coloring is applied. Concrete shall cure for 21 days. Color finish material shall be Novacrylic as manufactured by NOVA Sport Surfaces, SportMaster or equal.

The material shall be delivered to the construction site in its original unopened containers, clearly labeled with trade name and name of

manufacturer. Application of the color finish shall be applied only after the concrete has cured, minimum 21 days. The color finish shall be applied to the surface areas in multiple applications in the selected and approved colors so as to form a true, uniform surface texture and color. Application work shall be performed by skilled mechanics in a workmanlike manner in accordance with the manufacturer's standard printed materials. No work shall be performed when rain is imminent or when temperature is below 55 degrees Fahrenheit. A minimum of two coats of acrylic resurfacer shall be applied to the entire surface of the courts. A minimum of three coats of color coating shall be applied, according to its specifications. "Key" areas to be a different color. Colors to be approved by the Director of Public Works or his designee prior to placement. The Contractor shall then accurately layout, mark and hand paint the playing lines on the court as illustrated in the plans.

Bison Basketball System # BA870-BK Ultimate Glass Basketball System with BA 870PP-BK pole padding to be the system of choice. Each Pole will be installed in ,its own concrete footing of 3500 psi concrete, 12'x 48", direct burial system, per manufacturer's specification

METHODS

Scored concrete, not including the basketball court, shall be cured according to 201-4.1.1 and with a membrane curing compound to be approved by the Project Engineer. Basketball courts shall be water cured per 303-1.10.

Concrete footings and other miscellaneous concrete shall be paid for as part of the facility they are supporting and/or to which they attach. No further payment shall be made. This includes, but may not be limited to, fence post footings and concrete masonry unit wall repair.

Basketball courts shall be water cured per 303-1.10.

MEASUREMENT AND PAYMENT

The **BASKETBALL COURT** shall be paid for on a **LUMP SUM** basis. The price includes grade preparation, base membrane, curing, painting, striping, posts, hoop and backboard and all materials, labor and tool needed to complete the work.

The **LUMP SUM** Price paid for **BASKETBALL COURT** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals as specified in the Standard Specifications, in the special provisions, and as indicated on the plans.

End of Base Bid Special Provisions

ALTERNATE BID ITEMS – ADD ON FACILITIES

The facilities listed below were removed from the plans and specifications to reduce construction costs from a previous bid. The construction contract will be awarded to the lowest base bid. The City has the option of selecting any, none or all of the alternate bid items after the selection of the contractor.

ALTERNATE ADD-ON BID ITEM #1- AMPHITHEATER SHADE STRUCTURE

SCOPE

The steel and fabric shade structure shall be constructed to shade the amphitheater. It shall be constructed with footing below the stage slab. It shall be engineered and installed by the manufacturer.

GENERAL QUALITY ASSURANCES

Single-vendor contractual responsibility for all phases of the engineering-build process, fabrication, shipping, unloading, foundation construction, structure erection, & warranty servicing.

All materials shall be free of sharp edges, corners, & extremely rough surfaces.

All materials shall be new and conform to all specifications as herein stated

DESIGN & ENGINEERING REQUIREMENTS

1. To current, local California building code by Professional Structural Engineer licensed in California
1. Project Engineers must have designed/engineered 100+ commercial, cable- tensioned fabric structures
3. Wind design speed: 90+ MPH 3-second wind gusts (or higher, per local code) with fabrics attached
5. Fabricator shall have 10+ years' experience manufacturing cable-tensioned shade structures
6. Fabricator will provide City Representative solar shading study image at 3PM on December 22.

EXPERIENCE REQUIREMENT

Licensed California contractor with "B" (Gen'l Building) or "C61-D03" (Awnings) license, 5+ years' experience with cable-tensioned fabric shade structures. Shade comforts, Inc.; Shade systems, Inc.; Classic Recreation Systems, Ind. or equal.

INSURANCE

1. Workers Compensation : \$1M Each Accident
2. General Liability: \$2M General Aggregate; \$1M Each Occurrence
3. Automotive Liability: \$1M Each Accident

MATERIALS

1.1 FABRIC

- A. High density polyethylene (HDPE) fabric shall be Alnet Extra Block shade cloth or approved equal. Weighs 9.2-9.6 ounces per square yard for durability (ASTM D3776) color dependent.
- B. Fabric strength: Monofilament & tape construction.
- C. Tensile Strength (ASTM C 4595-86) color dependent: Warp: 1224-1156 lbf/ft.
- D. Weft: 1632-1768 lbf/ft.
- E. Tear Strength (ASTM D 1424) color dependent: Warp: 44 lbf; Weft: 44 lbf.
- F. Elongation at Break: (ASTM C 4595-86) color dependent: Warp: 66-68%; Weft: 58%.
- G. Burst Strength (ASTM 3786) color dependent: 784-828 lbf.
- H. UV stabilized for protection.
- I. UV% blocked: 85-96% (color dependent) UV Protection Factor: up to 25 (color dependent).
- J. Shade Factor (visual light): 80-97% (color dependent).
- K. Stentored to maintain shape under tension and minimize sag.
- L. Rachel-knitted to prevent unraveling if cut.
- M. 10 year warranty.
- N. Alnet Extra Block fire resistance approvals.
- O. California State Fire Marshal Section 13115 Registration # F-94501.

1.2 THREAD

- A. Shall be high density; high strength and low shrinkage
- B. Shall be abrasion resistant and immune to UV radiation
- C. Shall be unaffected by non-hydrocarbon based cleaning agents, acid rain, mildew, rot, chlorine, saltwater, and industrial pollution
- D. Shall be warranted for six (6) years

1.3 CARBON STRUCTURAL STEEL

- A. All fabricated steel shall conform to approved shop drawings and calculations.
- B. All carbon structural steel shall be ASTM A500 or A513 (except steel pipe columns, which shall be ASTM A-53 Grade B, unless otherwise noted). Plate steel shall conform to A36 Grade B.

1.4 TENSIONING CABLE & HARDWARE

- A. 7x19 galvanized steel cable shall conform to ASTM A-603
- B. Cable diameter determined by calculated engineering load
 - o 1/4" diameter for small-to-medium loads ; 3/8" diameter for heavy loads
- C. Cable connectors, shackles & turnbuckles shall be stainless steel or hot dipped galvanized
- D. Machine bolts shall conform to ASTM A-307 unless otherwise noted.
- E. Fabric corners for tensile structures shall have aluminum discs for added strength.

1.5 ANCHOR BOLTS

- A. Anchor bolts set in new concrete shall be A36 threaded rod, ASTM A-325, or A-307. B. All anchor bolts shall be hot dipped galvanized.

1.6 FOOTING REINFORCEMENT

- A. All reinforcement shall conform to ASTM A-615 grade 60.
- B. All reinforcing steel shall conform to approved shop drawings and calculations.

METHODS

2.1 WELDING

- A. All shop welds shall comply with the latest edition of the American Welding Society Specifications.
- B. Welding procedures shall comply with the AWS D1.1-AWS Structural Welding Code-Steel.
- C. All welds to be performed by a certified welder.
- D. All welds shall be continuous where length is not given, unless otherwise noted on drawings.
- E. All welds shall develop the full strength of the weaker member.
- F. All welds shall be made using E70xx electrodes; gas metal welds using ER 70S3 wire.
- G. Shop connections shall be welded unless noted otherwise.

- H. All fillet welds shall be a minimum of 3/16" unless otherwise noted.
- I. All steel shall be welded shut at terminations to prevent leakage.
- J. Field –welded connections are not acceptable.
- K. Field connections shall be indicated on the drawings

2.2 CORROSION PROTECTION

- A. Non-galvanized structural carbon steel greater than 7 gauge thickness plus welds
 1. Degrease with mild alkaline cleaner at 140 degrees.
 2. Iron phosphate rinse to create a conversion layer on the steel & welds.
 3. Prebake in oven at 350-400 degrees to burn off additional contaminants.
 4. Apply rust inhibiting primer prior to applying the powder coat.
 5. Primer shall be epoxy polyester hybrid.
 6. Apply TGIC polyester, UV-inhibited weather resistant powder coat (minimum 2 mm thick).
 7. Shade Comforts, Inc. 77 Solano Square #238 Benicia, CA 94510 (707) 746-5080 www.shadecomforts.com
- B. Pre-galvanized structural steel up to 7 gauge thickness
 1. Already has triple layer of zinc protection with polymer clear coat acting as primer.
 2. Clean with a mild alkaline solution.
 3. Prebake in oven at 350-400 degrees to burn off additional contaminants.
 4. Apply TGIC polyester, UV-inhibited weather resistant powder coat (minimum 2 mm thick).

2.3 SEWING

- A. On-site sewing of fabric will not be accepted.
- B. Corners shall be reinforced with extra non-tear material & strap
- C. Perimeters containing cables shall be double row lock stitched.

2.4 FOOTING CONSTRUCTION

- A. Footings shall conform to approved engineering specifications.
- B. Reinforcement fabricated & placed to latest ACI Detailing Manual & Manual of Standard Practice.
- C. Concrete work shall conform to latest edition of American Concrete Building Code ACI 318.

- D. Concrete specifications shall conform to approved engineering specifications.
- E. 28 Days Strength $F'c = 3000$ psi or 2500 psi depending upon approved engineering specifications.
- F. Contractor shall not pour concrete when daily ambient temperature is below 55 degrees F.

2.5 STRUCTURE ERECTION

- A. Erect structures & hardware in compliance with fabricators' instructions.
- B. Securely fasten all parts to be attached.
- C. Ensure all parts interact freely & smoothly without binding.
- D. Install shade structure in a timely manner & coordinate with the work of other trades.

2.6 WARRANTY

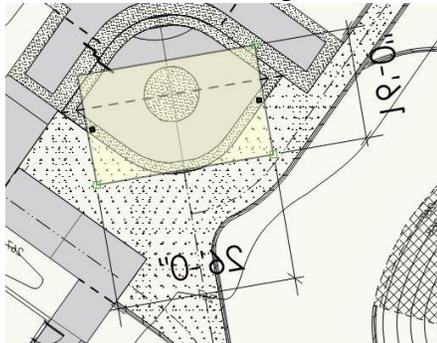
- A. The structural integrity of the steel shall be warranted for twenty (20) years.
- B. The fabric & sewn composite shade covering shall have a pro-rated warranty of ten (10) years.
- C. When used in its designed capacity, the structure shall be guaranteed for five (5) years from original installation against:
 - 1. Steel frame corroding or deteriorating under normal conditions.
 - 2. Inappropriate design of supporting structure.
 - 3. Fabrics shall be warranted for winds & gusts up to a specified design. The fabric warranty is void if winds or gusts exceed such design.
 - 4. Excessive loss of fabric color under normal exposure conditions (i.e. sunlight, rot, & normal atmospheric chemicals).
 - 5. Wearing or wind blowouts caused by poor installation or design.
- D. The fabrics should be removed before extreme wind conditions that exceed its design capacity.
- E. The contractor reserves the right to repair or replace any item covered by the warranty.
- F. Shade structures located in areas where they may be damaged from other construction shall be protected and or removed from the locations until hazardous conditions cease. Shade Comforts, Inc. 77 Solano Square #238 Benicia, CA 94510 (707) 746-5080 www.shadecomforts.com

MEASUREMENT AND PAYMENT

The contract linear foot price paid for the installation of the **AMPHITHEATER SHADE STRUCTURE** shall be paid for as a **LUMP SUM** price bid for the construction upon installation approval by the City Representative.

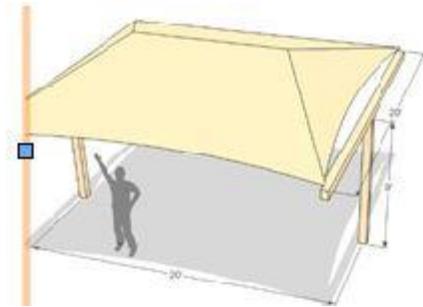
The **LUMP SUM** price paid shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing **AMPHITHEATER SHADE STRUCTURE** complete in place, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the City Representative.

Posts entered in stage bands



26' LONG AND 16' WIDE

Sketch of Structure



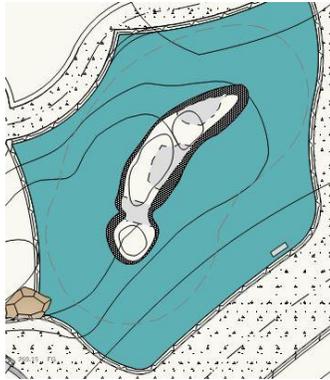
ALTERNATE ADD-ON BID ITEM 2 - PINNACLES ROCK CLIMB

The materials and methods for **the PINNACLES ROCK CLIMB** shall be according and adhere to **BID ITEM 62 – FAUX ROCK CLIMBING WALL**. The bid price shall include, besides construction of the **PINNACLES ROCK CLIMB**, the installation of 24.5 cubic yards of wood fiber safety surfacing and 15 additional linear feet of aluminum edging, both to be installed according to these plans and specifications.

Measurement and Payment for the **PINNACLES ROCK CLIMB** will be made as three separate and distinct pay items. Payment shall be made according to percentage of Owner Representative approved completion on a monthly basis for each **BID ITEM**.

The contract **LUMP SUM** price paid for **PINNACLES ROCK CLIMB** shall represent full compensation, including all labor, equipment, and materials necessary to perform the work per the plans and specifications

Details for the PINNACLES ROCK CLIMB are illustrated below. Contact Pacific Coast Land Design at: Chris@pc-ld.com if the full scale details in PDF format are required.



Plan view illustrates PINNACLES ROCK CLIMB, additional safety surfacing and steel edging. All related details can be downloaded at:

<https://app.box.com/2016-3-29-3rd-Round-Documents>

ALTERNATE ADD-ON BID ITEM 3 – HILL FORT AND CMU WALL

SCOPE

The hill fort consists of overhead posts and log rafters above an elevated wood deck with a cargo net. Construction is not complete until the deck, the cargo net and the decomposed granite pathway and CMU wall are all installed and approved by the City Representative. Masonry shall be constructed in accordance with the CONCRETE MASONRY UNITS CONSTRUCTION specifications contained in these special provisions.

MATERIALS

Wood understructure joists and beams shall be per the rough carpentry subsection of Bid Item #10 RESTROOM with the following exceptions:

Deck fascia shall be S4S "Incense" cedar from Bray Log or equal.

Decking shall be Eco-certified (FSC) IPE air dried to 12%.. Pre-grooved 5 ½" wide grooved decking stock with deck fastener clips for hidden stainless steel screws. Decking shall be 5/4 thickness. Use Stainless steel Trim Head Torx screws of 305 or 316 grade.

Galvanized and stainless steel fasteners shall be per the rough carpentry subsection of Bid Item #10 RESTROOM with the following exceptions:

Handrails, safety rails and safety handholds shall be Simplified Building Materials "KEE KLAMP" systems or equal. They shall be 1 ¼" Sched. 40 galv pipe with yellow powder coating on rails but no connection components. Submit complete parts list to City Representative for review.

METHODS

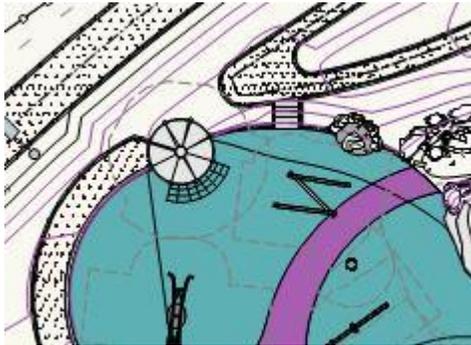
CEDAR STOCK

Cedar stock shall be straight and true or slightly distorted and natural looking as described on the plans. Provide pictures of each for City representative approval prior to purchase. Cedar shall be hand hewn by the manufacturer, with bark removed, unless otherwise directed on the plans. All stock shall be free of splinters, shall be smooth to the touch with no sharp surfaces.

IPE DECKING

Cut stock with carbide steel blades and eyeware to protect from irritating dust. Pre drill holes with Brad point drill bits and Forstner bits. Apply deck oil finish to all sides prior to construction.

Decking shall be delivered to site at least 21 days prior to construction. Contact City Representative upon arrival of wood. Install pre-grooved decking with clips and hidden screws at 45 degree angle.



RAILINGS, RAILS AND SAFETY HAND HOLDS

Construct per manufacturer's recommendations. Submit parts list and shop drawings.

Hill Fort & CMU wall includes 4 cubic yards of addition additional wood chip surfacing, 15 linear feet of steel edging and reorganization of 5-12 playground facilities in the field under the direction of the City Representative. Full details for construction are available at:

<https://app.box.com/2016-3-29-3rd-Round-Documents>

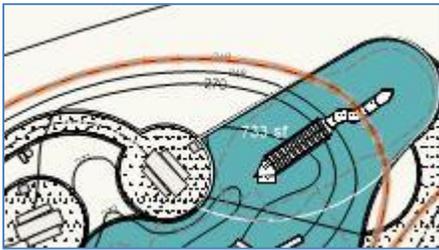
MEASUREMENT AND PAYMENT

The **HILL FORT** shall be measured and paid for on a **LUMP SUM** basis as indicated in the **BID SCHEDULE**. The contract **LUMP SUM** Price shall represent

full compensation for furnishing completed installation of the **HILL FORT** including all labor, equipment, and materials necessary to install the **HILL FORT**, complete in place. **HILL FORT** will not be paid for unless the retaining wall, the pathway to the fort, and the cargo net are all installed and approved by the City Representative.

ALTERNATE ADD-ON BID ITEM 4 – FREE STANDING SLIDE

SCOPE



Landscape Structures custom FREE STANDING SLIDE design #87725-2-2 shall be installed according the manufacturers recommendation. The FREE STANDING SLIDE construction will require 11 cubic yards of wood fiber safety surfacing and 95 linear feet of 6" wide concrete header.

Slide is adjacent to picnic area

The **FREE STANDING SLIDE** shall be measured and paid for on a **LUMP SUM** basis as indicated in the **BID SCHEDULE**. The contract **LUMP SUM** Price shall represent full compensation for furnishing completed installation of the **FREE STANDING SLIDE** including all labor, equipment, and materials necessary to install the **FREE STANDING SLIDE**, safety surfacing and concrete header, complete in place and with minor field adjustments in mounding at the direction of the City Representative.

ALTERNATE ADD-ON BID ITEM 5-SMALL FORT

SCOPE

The **SMALL FORT** consists of cedar posts and boulders that retain a mound and separate the area fro. the layground. The ground plane is decomposed granite.

MATERIALS

Boulders shall be according to Bid Item #6 in these specifications

Cedar logs shall be hand hewn finished and stripped of bark by manufacturer. Stock can be obtained from Bray Log & Lumber, 877-774-545 or other producer. Minor twists and deviations from straight and true are desirable such that no post to post distance shall exceed 1".

Install 10 mil high density polyethylene heavy carbon black moisture barrier 2" above finish grade to bottom of decomposed granite surface on slope side of fort.

METHODS

Construct the **SMALL FORT** to retain less than 30" of hillside planting on the back side with boulders and hand hewn cedar posts. Set posts in concrete collar. Provide front posts with 4" peek-a-boo openings. Countersink & fill two lags to each redwood signage backing piece. Construct "FORT" letters from random 1" diameter (+/- 1/4") branches epoxied and screwed into redwood backing. Lag half round cedar logs to top of posts that are not angled.

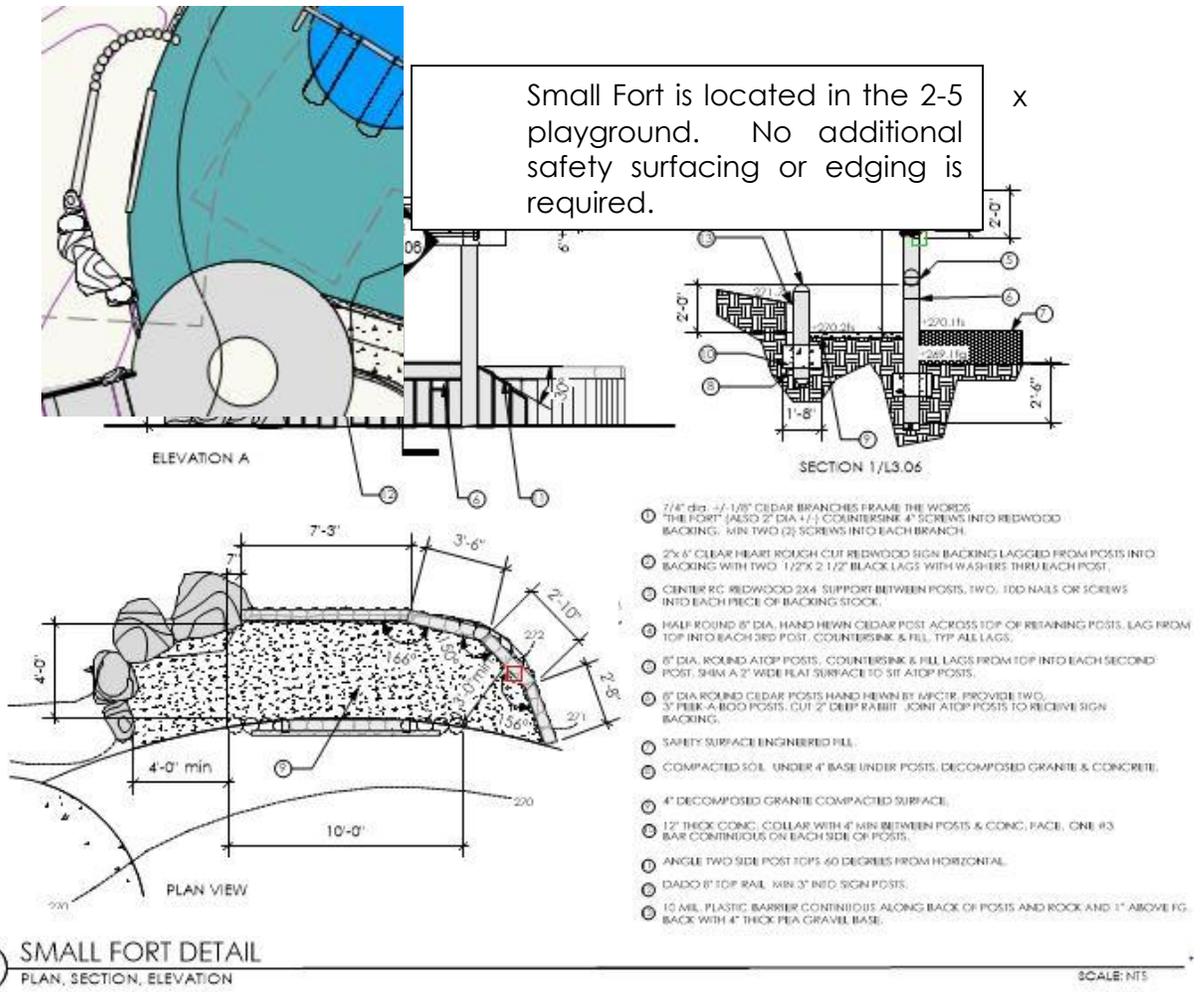
A seamless moisture barrier shall encompass boulders and posts in slope area. .

There shall be no more than 1" separation between adjacent posts above finished surface. All sharp edges, shakes splits, checks and cracks shall be smooth and free of splinters Apply Thompson's water seal stain or equal as recommended by manufacturer. Apply sealant prior to construction of posts.

All lags, bolts and hardware within children's reach shall be hidden from view and without sharp edges or snags as approved by the City Representative.

MEASUREMENT AND PAYMENT

The **SMALL FORT** shall be measured and paid for on a **LUMP SUM** basis as indicated in the **BID SCHEDULE**. The contract **LUMP SUM** Price shall represent full compensation for completed construction of **SMALL FORT** including all labor, equipment, and materials necessary to install the **SMALL FORT**, complete in place.



ALTERNATE ADD-ON BID ITEM 7 – BINOCULARS ON PEDESTAL BASE

Seacoast Mark II wheelchair accessible binoculars with 45" height and steel grey color. To be located as directed by the City Representative. Includes 75 square feet of additional decomposed granite paving and 15 linear feet of steel edging.

Binoculars on pedestal shall be measured and paid for at the contract **LUMP SUM** Price as indicated in the **BID SCHEDULE**. The contract **LUMP SUM** Price shall represent full compensation for furnishing completed installation of **BINOCULARS ON PEDESTAL** including all labor, equipment, adjustments and materials necessary to install the **BINOCULARS ON PEDESTAL** complete in place.

ALTERNATE ADD-ON BID ITEM 8 – CONCRETE TENNIS AND BASKETBALL COURT

SCOPE

Concrete courts shall be a single concrete monolithic structure with a Three quarter inch (3/4" expansion joint that at the center along the net and that separates the two courts. The construction also includes a 10' high fence and a sleeved footing with a cap on each end of the tennis court as illustrated on the plans. The adjacent seating area at the entry is a 3 ½" broom finished slab.

MATERIALS AND METHODS

Concrete shall have a vapor barrier in accordance with ASTM E-1745.

1. Concrete mixes should be placed with a water/cement ratio of .45.
2. Concrete surface should have a medium-broom finish.
3. Curing compounds should not be used unless the curing compound manufacturer specifically states the surface may be coated with water based acrylic coatings.

CONCRETE CONSTRUCTION

FOOTING & FENCING

The footing shall be 12" wide and 10" deep. Fence posts, net posts, sleeves and center anchor shall be installed prior to or during concrete placement. Fencing shall be completed prior to surfacing.

MOISTURE/VAPOR BARRIER

Moisture/vapor barrier, consisting of 10 mil polyethylene shall be installed prior to installation of steel and/or cables. Overlap polyethylene sheets at least 6" and tape joints. All concrete shall be pumped onto the court. Excessive loads at any time are unacceptable.

CEMENT

Cement (Type 1 or 1A) shall conform to one of the Standard Specifications for Portland Cement, ASTM C 150 or Specifications for Blending Hydraulic Cements, ASTM C 595, excluding slag cements Types S and SA. Do not use curing compounds.

AGGREGATE

Aggregate shall conform to Standard Specifications for Concrete Aggregates ASTM C 33. For concrete work that is 4" thick the nominal size of the coarse aggregate should not be greater than 1". Fly ash or other additives are not acceptable. Aggregate shall be non-reactive.

THICKNESS OF CONCRETE

Concrete shall be 4" thick.

REBAR

Rebar shall be according to Greenbook Section 201-2.1 and 303-1.7.1 except no reinforcing steel placing plan is required.

FORMS

Forms should be set accurately to the lines and grades indicated on drawings and secured to prevent settlement or movement during placing of concrete. Forms should remain in place until concrete has taken its final set.

CONCRETE PROPORTIONING AND MIXING

The concrete should have a compressive strength of not less than 3,000 psi at 28th day after casting. Ready-mixed concrete should be mixed and delivered in accordance with ASTM C 94, Specification for Ready-Mixed Concrete with a 4" maximum slump.

PLACING AND FINISHING

Concrete shall be placed by pumping method. The full monolithic half court slab should be placed in one continuous operation without intervening joints of any kind. Concrete should be spread, consolidated, screeded, and bull-floated and finished in accordance with Section 7.2 of ACI (American Concrete Institute) Standard 302, Recommended Practice for Concrete Floor and Slab Construction. When concrete is sufficiently set to withstand foot pressure with only about 1/4" indentation and the water sheen has left the surface, the slab should be uniformly finished by power floating and troweling. The final finish texture should be a medium broom finish. No curing compounds should be used at any time.

SURFACE TOLERANCES

The finished surface of the court shall not vary more than 1/8" in 10' when measured in any direction.

CURING

Immediately after finishing, the concrete should be kept continuously moist for 7 days by covering with polyethylene film or waterproof curing paper, or by sprinkling or ponding or other acceptable coverings. No curing compounds should be used at any time. Curing time should be in accordance with surfacing system manufacturer's recommendations. Timing is critical on all of the above due to the possibility of disturbing the finished surface

GALVANIZED CHAIN LINK FENCE

Construction of chain link fence shall be according to the plans and Section 304-3.2. There shall be gates as indicated per the construction

plans. Footings shall be independent of and set below the concrete court structures.

COURT SURFACING

Surfacing for the concrete court is identical to the Asphalt paved specifications

MEASUREMENT AND PAYMENT

The **CONCRETE TENNIS AND BASKETBALL COURT** shall be paid for on a **LUMP SUM** basis. The price includes grade preparation, base membrane, curing, painting, striping, posts, hoop and backboard and all materials, labor and tool needed to complete the work.

The **LUMP SUM** Price paid for **CONCRETE TENNIS AND BASKETBALL COURT** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals as specified in the Standard Specifications, in the special provisions, and as indicated on the plans.

END OF SPECIAL PROVISIONS