



# City of Lindsay

## DEPARTMENT OF CITY SERVICES

P.O. Box 369 — Lindsay, California 93247 — 150 North Mirage Ave.

559 • 562 • 7102 Option 4

559 • 562 • 5748 fax



April 13, 2023

### Olive Bowl/Kaku Park Expansion

#### Addendum/Clarification No. 5

The following additions and/or corrections shall become part of the Specifications for the subject project:

Additions/Clarifications:

1. Q: Does the city have plans or contact information on the entity that supplied and/or installed the Existing Shade Structure Canopy?  
A: At this time, the City does not have this information.
2. Q: Specification Section 02449 – Landscape Maintenance appears to be a year-round maintenance program and requests pricing on over 140 individual unit prices. Specification Section 02900 – III.L calls for a 30 day plant establishment period and a 60 maintenance period. Is Specification Section 02449 applicable to this project? If so, which parts? If the unit prices are to be included, how are those to be included in the bid?  
A: MIG: Section 02449 - Landscape Maintenance is being removed from the scope in its entirety. Refer to section 02900 - Landscape Planting for 90-day maintenance period.
3. Q: Bid Item 10F – Booster Pump says that it is to be bid on and billed as an allowance. A dollar amount for the allowance has not been provided. Please advise.  
A: MIG: Booster Pump should be priced as 'each', not 'allowance' however this line item has been combined with All Irrigation line item. Contractor shall provide cost for specified booster pump per plan sheet L3.0. See Addendum #5 for updated Bid Schedule.
4. Q: Most of the suppliers for Play Equipment, Site Furnishings, Shade Structures and similar material items require deposits in order to place the materials into their production lineup which can have a 4-6 months lead time. Will the city allow the contractor to invoice for these deposits with their monthly billings to the city?  
A: Yes, the City will allow the Contractor to invoice for the deposits with their monthly billing.
5. Q: The off-site manufacturing of the Public Restroom and Public Restroom/Concession buildings will require deposits and progress billings by Public Restroom Company. Will the city allow the contractor to invoice for these deposit and progress billings with their monthly billing to the city?  
A: Yes, the City will allow the Contractor to invoice for the deposits with their monthly billing.



6. Q: Parking Lot Signage, Striping and Wheelstops are called out on various plan sheets. Which Bid Item or Items on the Bid Schedule are to include this work?  
**A: MIG: Line Item 15 has been added to the Bid Schedule for all parking lot signage, striping and wheel stops. See Addendum #5 for updated Bid Schedule.**
7. Q: Item 13 on plan sheet C4.0 calls for a Woodchip surface material at the play areas. The legends on C4.0, C4.1, C4.2 and note 9 on sheet L2.1 as well as Bid Item 8K call out Rubberized Surfacing. Please confirm that the contractor is to furnish and install Rubberized Surfacing per 02535. Also, Bid Item 6G – Play Area Curb Bid Item Description says, in part, ...”furnish the approved rubber/rubberized material” as part of the work to be included in that bid item. Please advise if this is a misprint or if there is something else to be included in that bid item.  
**A: MIG: Confirmed, Contractor to furnish and install rubberized surfacing per 02535. Bid Item #6G is only the play area curb and Bid Item #8K is for the rubberized surfacing. See Addendum #5 for updated sheet C4.0.**
8. Q: Note 6 on plan sheet C5.1 calls for a mitered drain at the Bio-Retention Basin on that sheet. The plan does not show any associated piping or where it may run. Please advise.  
**A: BKF: Mitered drain and curb drain notes were remaining from a previous issue of our design and has since been removed. See Addendum #5 for updated sheet C5.1.**
9. Q: Note 45 on plan sheet L2.1 and Bid Item #7B call for a 30’ hi safety net and refer to C/LD-6 for details. C/LD-6 says to refer to the specifications for more information. There are no specifications for this item. Please provide a specification and additional details.  
**A: MIG: See Addendum #5 Specifications for added Safety Netting (02833) specification.**
10. Q: The following items are called off on the plans. They do not have a corresponding Bid Item #. Please advise if they are OFOI, OFCI or CFCI. If they are to be contractor furnished or contractor installed, please provide a corresponding Bid Item # where the costs are to be included and the quantity for each item:
- Infield Bases, Pitching Rubbers, Home Plate
  - Portable Pitching Mounds
  - Bullpen Items - Windscreens, Portable Pitchers Mounds, Pitching Rubbers, Home Plate
  - Batting Cage Items – Rubber Backstop Mat, Synthetic Turn, Netting, Batters Mat
  - Batters Eye Screen
  - Dugout Shade Fabric
- A: MIG: See added Bid Schedule item 7J – Ballfield Equipment to include all items listed above and items listed in plans. Quantities to be confirmed by Contractor.**
11. Q: Item 1 on A/LD-8 call for 30’ C/L Backstop & Netting and refers you to B/LD-7. B/LD-7 shows C/L Fabric only and no netting. Please confirm that there is no netting in this location.  
**A: MIG: Confirmed, there is no netting at the backstop. The netting callout has been removed from detail A/LD-8. See Addendum.**
12. Q: Bid Item 8F and Note 16 on L-2.1 call for Family BBQs and refer to B/LD-2. D/LD-2 shows a Hot Ash Container. Are these Hot Ash Containers to be included in the bid? If so, how many and which bid item are they to be included?  
**A: MIG: There are no hot ash containers. The hot ash container detail D/LD-2 has been removed. See Addendum.**
13. Q: Bid Item #7V, E/LD-6 and F/LD-1 all call for a 9” wide x 6” deep concrete mow band at the fencing in turf areas. Specification 02830 calls for a 12” wide mow band. Please advise if the mow band is to be 9” wide or 12” wide.  
**A: MIG: Spec Section 02830 is changed to 9” wide concrete mow band. See Addendum.**

14. Q: C/LD-6 calls for a 7'-6" deep x 2'-0" diameter footing for the 30' high Safety Netting post. 3/ST-1 calls for a 14'-3" deep x 3'-0" diameter footing. Please advise which detail is to be used.  
A: MIG: Disregard footing sizing in detail C/LD-6. Detail 3/ST-1 will take precedence. See Addendum #5 for sheet LD-6.
15. Q: Is there going to be a Construction Manager on the project for the City. If so, who will it be?  
A: The Project Manager will be Baldo Rodriguez. Edna Hubbard will provide some assistance with this project; however, the main Point of Contact will be Baldo Rodriguez. Both individuals are from the City.
16. Q: F/LD-3 note says to refer to M/LD-7 for trash enclosure gates. There is not M/LD-7. Please advise.  
A: MIG: Disregard note reference. Note has been changed to Detail B/LD-3. See Addendum #5 for sheet LD-3.
17. Q: Note 57 on L2.1 calls for collapsible bollards traffic guard model # HRP36 (which is surface mounted) and refers to F/LD-2. F/LD-2 calls for traffic guard model # RFP6660R in ground mount. Please advise which model is to be furnished and installed. How are they to be anchored?  
A: MIG: Bollards are to be surface mounted. Note has been changed on F/LD-2. See Addendum #5.
18. Q: Note 55 on L2.1 calls for a poured in place seat wall with recycled plastic seat toppers and refers you to A/LD-3. A/LD-3 calls for a recycled concrete seat wall by QCP Concrete Solutions with a recycled lumber bench top. Is the seat wall to be poured in places or precast? IS the seat top to be recycled plastic or recycled lumber?  
A: MIG: Note has been changed to 'PRECAST CONCRETE SEATWALL WITH RECYCLE LUMBER SEAT TOPPER on note 55, sheet L2.1. See Addendum #5.
19. Q: Note 4 on sheets c4.0- c4.2 call out stabilized dg. L21 – 12.3 have similar callouts and refer you to c/lD-1. C/lD-1 class out Gail Materials as the source for the stabilized dg. Spec section 02547.b calls out stabilizer solutions as the organic binder supplier. Gail Materials is located in Corona, CA, which is 220 miles from the project site and over an 8 hour round trip for trucking. Please confirm that local sources for similar materials will be acceptable in order to help reduce costs while maintaining quality.  
A: Approved equal materials from a local source are acceptable so long as they meet the minimum standards required in the Specifications.
20. Q: Spec 02547 sections C, D, and E call out stabilizer as the supplier for the infield surface, batter's box, pitchers mound clay, and warning track materials. Please confirm that local sources for these materials will be acceptable. Please also confirm that these items are all included in bid item 7T.  
A: Approved equal materials from a local source are acceptable so long as they meet the minimum standards required in the Specifications. These items are included in Bid Item 7U.
21. Q: Sheet SK3.0 Skatepark schedule, item sp-17 doesn't have a referenced detail or section. Please provide.  
A: MIG: Sheet SK3.0 has been updated with reference. See Section L on SK8.1. See Addendum #5.

22. Q: Note 78 on sheet L2.1 calls out for the existing memorial and pedestal to be removed and relocated. Which bid item is the cost of this work to be included under?  
 A: MIG: Line Item 18 will be added to the Bid Schedule for Existing Memorial and Pedestal removal and relocation. See Addendum #5 for updated Bid Schedule.
23. Q: Note 10 on K/LD-1 calls for the Contractor to provide structural calcs for the alt #4 block wall. Will these be necessary?  
 A: MIG: Yes, Contractor shall provide footing design and calcs as part of a deferred submittal for the block wall.
24. Q: Please confirm that all permit and inspection fees are paid for by the city.  
 A: Business License fees are not waived. The Encroachment Permit fees and the Construction and Demolition Permit fees are waived. As indicated in the Bid Schedule, fees for the Storm Water Pollution Prevention Plan (SWPPP) are not waived by the City.
25. Q: Bid item #4J- Primary and Secondary Service Conduits and bid item # 4N- SCE Undergrounds and install of conduits and manholes appear to be the same thing. Can one of these items be removed? Or can you please clarify what work is to be included in each item?  
 A: LRA: Items are to remain as listed. For clarification see further explanation below.  
 Bid Item #4J Primary and Secondary Service Conduits (in addition to information specified on plans):  
 1. Primary conduit from the SCE manhole to Olive Bowl Park transformer pad  
 2. Transformer Pad  
 3. Secondary conduits from transformer pad to Main Switchboard MSA/MSB  
 Bid Item #4N- SCE Undergrounds and Install of Conduits and Manholes are the manhole and conduits shown on SCE Design\Drawing No. 1469649\_0.01, convert existing overhead SCE power lines to underground shown on the Olive Bowl Park electrical site plans.
26. Q: Detail K on page LD1 calls for the CMU to be both precision and split face, see attached. Please clarify the texture of the CMU.  
 A: MIG: Detail has been changed to reflect Split Face CMU. See Addendum #5.
27. Q: I am requesting clarification on the foundations for the P1 & P2 located in the skatepark area. Please advise if clarification will be made available prior to bid? Musco Foundation dimensions are located on page E3.1, there is no direction for P1 & P2?  
 A: MIG: For poles P1 and P2, contractor shall use the same information as poles A1 and A2 for the foundations for bidding.
28. Our team has a question concerning section VII. Weed Control. The scope of service lists a weekly inspection and treatment or removal for any weeds found. Is that the required scope moving forward? Typically we perform soil sterilization and then a pre-emergent treatment with follow up inspections to confirm effectiveness however they are usually done on a monthly basis. Would a monthly instead of weekly inspection and treatment be considered for this project?  
 A: MIG: Section 02449 - Landscape Maintenance is being removed from the scope in its entirety. Refer to section 02900 - Landscape Planting for 90-day maintenance period.



29. Q: We are having difficulty identifying which bid item the field bases/pitcher's mound/home plate will be paid under. Please clarify.

A: MIG: These items to be included on line item 7J 'All Ballfield Equipment' on updated Bid Schedule per Addendum #5.

30. Q: Section 02449-Landscape Maintenance is quite extensive. It includes typical landscape/irrigation maintenance and many other items/services that are not typically required as "Landscape Maintenance" such as cleaning of most site amenities, sweeping of all hardscape surfaces, washing & drying of tennis/basketball/racquetball/handball courts, animal feces removal, trash pickup/removal, trash container emptying/cleaning, etc. This section discusses annual maintenance items that should be completed by the Owner on an annual basis. Is this spec section intended for a long-term park maintenance contract that the City would execute as a separate contract?

A: MIG: Section 02449 - Landscape Maintenance is being removed from the scope in its entirety. Refer to section 02900 - Landscape Planting for 90-day maintenance period.

31. Q: Note 10 On K/LD-1 Calls For The Contractor To Provide Structural Calcs For The Alt #4 Block Wall. Will These Be Necessary?

A: MIG: Yes, Contractor shall provide footing design and calcs as part of a deferred submittal for the block wall.

32. Q: Is concrete testing by the Contractor?

A: The Contractor shall provide material testing results from a certified laboratory. Concrete testing will be performed at the site by the City's certified laboratory consultant to ensure that concrete mix meets the minimum standards and required 28-day strength when applied at the site.

33. Q: Per Bid Proposal documents, Iran Contracting Act of 2010 form, there is a signature line denoting Contractor / Subcontractor. Please confirm that this form is only required from the Contractor at the time of bid and that, if required by Subcontractors, the form can be submitted for Subcontractors within 3 days after bid opening by the lowest bidder. Please also confirm that if required to be submitted by Subcontractors, if required for all Subcontractors, or only those whose individual quotes are \$1,000,000 or more.

A: This is required for the Prime Contractor and Subcontractor(s) with performed work that amount to a minimum of \$1,000,000.00. The Prime Contractor will need to submit this form with their sealed Bid Proposal/Bid Submittal. Subcontractor(s) who will perform work that amounts to an excess of \$1,000,000.00 will need to submit this form within 24 hours of the opening of the sealed bids.

34. Q: Per the General Conditions, 2-13.c Observance of Laws and Regulations, indicates that Contractor is responsible for earthquake. Pursuant to Public Contract Code 7105, contractors are not responsible for repairing or restoring damages caused by an act of God in excess of 5% of the contracted amount, unless a separate bid item for this coverage is provided. Please confirm contractor will not be responsible for acts of God in excess of 5% of the contract value.

A: Yes, the Contractor is not responsible for acts of God in excess of 5% of the Contract value.

35. Q: Would the Owner consider allowing the Contractor and Subcontractor organizational charts, equipment listings, and project specific employee lists to be submitted within 24 hours of the bid opening? It is very difficult to obtain this information from all subcontractors prior to the bid early enough to send with our bid runner. Sub bids are often received up to within minutes of the bid closing time.

A: Yes, the City will allow the Contractor and all Subcontractors to provide this info (organizational charts/project-specific employee lists, equipment listings) within 24 hours of the Bid Opening.

36. Q: Per General Conditions, Section 2-14.G, states all coverage for subcontractors shall be subject to all of the requirements stated herein. Please confirm the Prime Contractor can accept lower insurance limits of insurance that are commercially reasonable from its subcontractors based on their scope of work. Please also confirm that this requirement does not apply to the Builder's Risk Insurance, as it is economically unfeasible for all parties to carry this insurance in the interest of the project.

A: The Prime Contractor and Subcontractor will have to adhere to the minimum insurance requirements for General Liability, Auto Liability, Employer's Liability, Workers' Compensation Liability specified in Section 2-14G. Builder's Risk Insurance is not required for this project. The Prime Contractor shall list the City and all its entities as additional insured.

37. Q: The subcontractor listing on the Bid Proposal form requests the dollar amount of the subcontract and the percentage of the subcontracted work. There will be a significant amount of subcontractors to list for the project and it will be extremely difficult to accurately fill out these amounts and percentages and turn them in with the bid. Is it acceptable to fill in the Type of Work, DIR # and Subcontractor Information, turn that in with the bid, and turn in the Dollar Amount and Percentage portion of the subcontractor listing within 24 hours after the close of the bid?

A: The City will be unable to allow this request. All the Subcontractor information detailing all the Subcontractors, Type of Work, DIR #, Dollar Amount of Contract, and Total Percentage will need to be specified and submitted in the sealed Bid Proposal/Bid Submittal. Should a separate 8.5" x 11" sheet be needed detailing all the Subcontractors, Type of Work, DIR #, Dollar Amount of Contract, and Total Percentage, that is okay so long as it is attached to and submitted with the sealed Bid Proposal/Bid Submittal.

38. *Bid Proposal* Section:

- a. Addition and Changes to the *Bid Schedule* Section of the Bid Proposal
  - i. The entire *Bid Proposal* section of the specifications will be sent with this Addendum to ensure that Contractors have a comprehensive version with all the changes that have been made to this section. Changes to the language and/or descriptions are added to red in this section.

39. *Technical Provisions* Section:

- a. Addition and Changes to the *Technical Provisions* Section of the Specifications
  - i. Section 02449 - Landscape Maintenance
    - This section has been removed from the scope in its entirety.
  - ii. Section 02830 – Chain Link Fencing
    - Language has been modified in this section and shall become part of the specifications for the above-mentioned project.

- iii. Section 02833 – Safety Netting
  - This section has been added to the *Technical Provisions* portion of the specifications for the above-mentioned project.
- iv. The entire *Technical Provisions* section will be sent with this Addendum to ensure that Contractors have a comprehensive version with all the changes that have been made to this section. Changes to the language and/or descriptions are added to red in this section.

40. At this time, the Bid Opening date and time remains the same as specified in Addendum No.4.

This completes the items included in this Addendum/Clarification No. 5 for the City of Lindsay, **Olive Bowl/Kaku Park Expansion**. This Addendum cover page shall be signed and submitted with the bid proposal along with Addendum/Clarification No. 1, Addendum/Clarification No. 2, Addendum/Clarification No. 3, Addendum/Clarification No. 4.

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Contractor

Date

**SECTION ONE  
C - BID PROPOSAL  
CITY OF LINDSAY  
OLIVE BOWL/KAKU PARK EXPANSION  
Lindsay, California**

Ladies & Gentlemen:

The undersigned hereby declares, as Bidder, that the only persons or parties interested in this proposal as principals, are those named herein, that no public officer or employee of the City is in any manner interested directly or indirectly in this proposal or in the profits to be derived from the contract proposed to be taken; that this bid is made without any connection with any other person or persons making a bid for the same purpose; that the bid is in all respects fair and without collusion or fraud; that he has read the Notice of Inviting Bids and the Specifications and agrees to all the stipulations contained herein; that he has examined the site of the work, the form of Agreement and the Specifications and drawings referred to therein.

The undersigned hereby proposes and agrees to furnish all of the material, labor, equipment, transportation and services for the construction and completion of the work listed below, all in strict conformity with the Plans, Specifications and other contract documents on file at the City, at the unit prices listed below.

If awarded the contract, the undersigned agrees to sign said contract and furnish the necessary bonds and insurance policies within ten (10) calendar days after the Notice of Award of contract.

The undersigned has checked carefully all of the prices quoted and understands that the City of Lindsay will not be responsible for any errors or omissions on the part of the undersigned in making up this Bid Proposal.

Attached please find Bidder's Bond or certified check, for \$ \_\_\_\_\_, which amount is not less than ten percent (10%) of the total amount of this bid.

**BIDDING SHEET**

The work under this Specification is for the construction of the City of Lindsay, **Olive Bowl/Kaku Park Expansion** for the City of Lindsay all as described in this Specification and as shown on Plans.

The City reserves the right to:

1. Accept or reject any or all bids.
2. Award the contract to the lowest qualified Bidder for the Base Bid, if selected.
3. Waive any defects.
4. Accept all or any portion of the BID SCHEDULE.

The undersigned hereby certifies that he has a valid license as contractor **Class "A" General Engineering Contractor License**, in the State of California, the number of which is \_\_\_\_\_ and expiration of which is \_\_\_\_\_. I hereby declare that this information is valid and submitted under penalty of perjury in compliance with Business and Professions Code Section 7028.15.

\_\_\_\_\_  
Signed

\_\_\_\_\_  
Title

The undersigned hereby proposes and agrees to furnish all of the material, labor, equipment, transportation and services necessary for the construction of the City of Lindsay, **Olive Bowl/Kaku Park Expansion and Olive Bowl/Kaku Park Revitalization Plans**, all in strict conformity with the Plans and Specifications on file with the City of Lindsay. Bids shall include sales tax and all other applicable taxes and fees. Completion time is defined as the number of calendar days necessary to complete the defined work items from the date of the Notice to Proceed.

In accordance with Section 4552 of the Government Code, the bidder shall conform to the following requirements. In submitting a bid to the City, the bidder offers and agrees that if the bid is accepted, it will assign to the City 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.) 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 purchase of goods, materials, or services by the bidder.

#### BID SCHEDULE

The Bid Schedule(s) list the various divisions of construction contemplated in the Plans and Specifications, together with an estimate of the units each. With these units as the basis, the Bidder will extend each item, using the cost he inserts in the unit column. Any total cost found inconsistent with the unit cost shall be considered incorrect. Unit cost figures shall be considered correct and adjustments made accordingly.

The Bid prices shall be in ink or typewritten and the sum entered in figures. The following quantities of work to be done and materials to be furnished are given as a basis for the comparison of bids. The City reserves the right to increase or decrease the quantities of any items as necessary or expedient.

All items shall be complete in place and bids shall include sales tax and all other applicable taxes and fees.

Witness our hands this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

Signature of bidder, with business addresses and phone number.

Individual Contractor Name:

Address:

Partnership Name:

Business Address:

By:

Partner.

Other Partners:

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Corporation Name:

Business Address:

---

By: \_\_\_\_\_,  
President.

\_\_\_\_\_,  
Secretary

(Corporate Seal)

Organized under the laws of the State of

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**BID BOND**

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, \_\_\_\_\_ as Principal and \_\_\_\_\_ as surety, are hereby held and firmly bound unto THE CITY OF LINDSAY as Owner, in the penal sum of \_\_\_\_\_ for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of the above obligation is such that whereas the Principal has submitted to the CITY OF LINDSAY a certain Bid, attached hereto and hereby made a part hereof to enter into a contract in writing, for the

**City of Lindsay**  
**Olive Bowl/Kaku Park Expansion**

NOW THEREFORE,

- a. If said Bid shall be rejected, or in the alternate,
- b. If said Bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a bond for his faithful performance of said contract and for the payment of all persons performing labor or furnishing materials in connection therewith and shall in all other respects perform the agreement created by the acceptance of said Bid, then this obligation shall be 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 claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligation of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such Bid; and Surety does hereby waive notice of any extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals and such of them as are corporation have caused their corporate seals to be hereto affixed and these presents to be signed by their property officers, the day and year first set forth above.

\_\_\_\_\_  
Contractor, Individual, Partnership, or Corporation

\_\_\_\_\_  
Surety

By: \_\_\_\_\_

By: \_\_\_\_\_

**DECLARATION OF NON-COLLUSION TO BE EXECUTED BY  
BIDDER AND SUBMITTED WITH BID**

State of California                    )  
  )  
County of \_\_\_\_\_)

I, \_\_\_\_\_, declare as follows:

I am \_\_\_\_\_ of \_\_\_\_\_ the party making the foregoing bid, that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

I certify (or declare) under penalty of perjury that the foregoing is true and correct and that this declaration is executed in \_\_\_\_\_, California, on \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Signature

**PROPOSAL  
INFORMATION REQUIRED OF BIDDER**

The Bidder is required to supply the following information. Additional sheets may be attached if necessary.

(1) Address: \_\_\_\_\_

Phone No. \_\_\_\_\_ Fax No. \_\_\_\_\_ E mail/Web page \_\_\_\_\_

(2) Type of Firm: Individual, Partnership or Corporation: \_\_\_\_\_

(3) Corporation organized under the laws of the State of \_\_\_\_\_

(4) List the names of all members of the firm or names and titles of all officers of the corporation:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(5) Number of years experience as a licensed contractor in this type of construction work: \_\_\_\_\_

(6) Subcontractors Listing. Please complete the section below with all subcontractors that will be performing work in or about the work or improvement in excess of one-half (1/2) of one percent (1%) of the total bid price. Attach additional pages as necessary.

**BASE BID**

No.	Type Work	DIR #	Subcontractor Name, Address, Phone, FAX	Dollar Amt. of Contract	Total Percentage
1					
2					
3					
4					
5					
6					
7					
8					

**ALTERNATE BID**

No.	Type Work	DIR #	Subcontractor Name, Address, Phone, FAX	Dollar Amt. of Contract	Total Percentage
1					
2					
3					
4					
5					
6					
7					
8					

(7) List the name of the person who inspected the site of the proposed work for your firm: \_\_\_\_\_ . Date of Inspection: \_\_\_\_\_

(8) List 3 projects minimum and the owners and project manager and contact of similar size and type of construction; include the total base dollar figure and the final constructed dollar figure. (Attach additional page if necessary):

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

(9) The General Contractor and all listed subcontractors shall submit with this proposal an organizational chart listing current employee names and titles. The General Contractor and all listed subcontractors shall identify the proposed project manager and foremen and include the length of employment with the company and years of experience with this type of construction. The General Contractor and all listed subcontractors shall also list the equipment owned that will be utilized on this project and list equipment not owned that is anticipated to be rented/purchased to complete this project.

(10) If requested by the City, the Bidder shall furnish a notarized financial statement, financial data, or other information and references sufficiently comprehensive to permit an appraisal of his current financial condition.

The undersigned acknowledges that the quantities of work specified are approximate only, are the quantities which will be required to the best knowledge of the City at this time and are set forth herein for the purpose of comparing bids.

The City reserves the right to reject all bids or waive any informality and to award the bid to the best qualified bidder on any Schedule.

The undersigned agrees, if awarded the Contract, to begin work within ten (10) calendar days after the date of the Notice to Proceed and to fully complete all work within the number of calendar days stipulated in the Instruction to Bidders after the date of the Notice to Proceed.

Receipt is hereby acknowledged of Addenda Number(s)

\_\_\_\_\_.

The undersigned is licensed in accordance with the laws of the State of California, Class “\_\_\_\_\_”  
\_\_\_\_\_ Contractor License.

Individual Contractor

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Partnership

Name: \_\_\_\_\_

Business Address: \_\_\_\_\_

\_\_\_\_\_

By: \_\_\_\_\_

Partner.

Other Partners: \_\_\_\_\_

\_\_\_\_\_

Corporation

Name: \_\_\_\_\_

Business Address: \_\_\_\_\_

\_\_\_\_\_

By: \_\_\_\_\_, President.

\_\_\_\_\_, Secretary

Organized under the laws of the State of

\_\_\_\_\_

(Corporate Seal)





**IRAN CONTRACTING ACT OF 2010**

In the event that my bid or proposal is one million dollars (\$1,000,000.00) or more, by my signature below, I certify that this company, any parent entities, subsidiaries, successors or subunits of this company and I, personally, are not identified on a list created pursuant to subdivision (b) of Section 2203 of the California Public Contract Code as a person engaging in investment activities in Iran as described in subdivision (a) of Section 2202.5, or as a person described in subdivision (b) of Section 2202.5 of the California Public Contract Code, as applicable.

By my signature on this proposal I certify, under penalty of perjury under the laws of the State of California, that the foregoing questionnaire is true and correct. By my signature on this proposal, I further certify, under penalty of the perjury under the laws of the State of California, that the Non-Collusion Affidavit, and the Debarment and Suspension Certification are true and correct.

\_\_\_\_\_  
Contractor/Subcontractor

By: \_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Business Address (Street Address, City,  
State & Zip Code)

\_\_\_\_\_  
Business Phone Number

**BID SCHEDULE**  
**City of Lindsay**  
**Olive Bowl/Kaku Park Expansion**  
**Page 1 of 9**

**I. Selection Schedule**

The tentative schedule and sequence of this RFQ/RFP is as follows:

- Release RFQ/RFP Notice - March 3, 2023
- Optional Pre-Bid Job Site Meeting - March 16, 2023 at 10:AM PST
- Final day for Submission of Questions to City - March 30, 2023 by 5:00 PM PST
- **Final responses to Questions - April 13, 2023 by 2:00 PM PST**
- **Deadline for Submission of RFQ/RFP - April 18, 2023 by 2:00 PM PST**

**II. Project Description**

It is the goal for the City of Lindsay to upgrade and transform the Olive Bowl/Kaku Park.

The work to be done consists of furnishing all labor, materials, supplies, tools, equipment, other facilities, and incidentals necessary for the construction and completion of the **Olive Bowl/Kaku Park Expansion** in accordance with the Specifications and Plans.

All transported and/or disposed materials will need to be weighed, tracked, and reported to the City, per Senate Bill 1383 and City Ordinance.

Mid-Valley Disposal has exclusive rights within our jurisdiction to be the only refuse provider. Contractor shall coordinate with Mid-Valley Disposal for any refuse services. If Mid-Valley cannot provide the services, the contractor will be allowed to use other companies.

**BID SCHEDULE**  
**City of Lindsay**  
**Olive Bowl/Kaku Park Expansion**  
**Page 2 of 9**

**Base Bid Schedule**

<b>Item No.</b>	<b>Description</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Total Price</b>
1	Mobilization, Demobilization and Cleanup	1	LS	\$	\$
<b>2. Demolition</b>					
2A	Clear And Grub Softscape	352,456	SF	\$	\$
2B	Existing Trees	33	EA	\$	\$
2C	Existing Hardscape	1	LS	\$	\$
2D	Existing Playground (Equipment, Footings And Surfacing)	1	LS	\$	\$
2E	Existing Electrical Poles	1	LS	\$	\$
2F	Existing Perimeter Fencing	1	LS	\$	\$
2G	Misc. Demo Items Needed To Construct All Improvements.	1	LS	\$	\$
2H	Existing Ballfields And Structures (All Fencing, Gates, Dugouts, Backstops, Bleachers, Concrete, Building, Footings Etc.)	1	LS	\$	\$
<b>3. Earthwork/Grading</b>					
3A	Excavation & Grading	5,000	CY	\$	\$
3B	Export	2,800	CY	\$	\$
3C	Construct Subgrade, Fine Grade And Soil Preparation For Ball Fields	165,854	SF	\$	\$
3D	Construction Staking And Surveying	1	LS	\$	\$
3E	Erosion and Sedimentation Control	1	LS	\$	\$
3F	SWPPP Preparation And Implementation	1	LS	\$	\$

<b>4. Site Electrical</b>					
4A	Field #1, #2, #3 & Skate Park LED Lighting	1	LS	\$	\$
4B	Walkway - LED Lights	1	LS	\$	\$
4C	Parking Lot - LED Lights	1	LS	\$	\$
4D	Power For The Booster Pump And Irrigation Controllers	1	LS	\$	\$
4E	Security/Surveillance System	1	LS	\$	\$
4F	Switchboard C And Power For The Concession/Restroom Building	1	LS	\$	\$
4G	Power For The Existing Restroom Building And Other Loads To Remain	1	LS	\$	\$
4H	Main Switchboard MSA/MSB	1	LS	\$	\$
4I	Switchboard B And Power For The New Restroom Building	1	LS	\$	\$
4J	Primary And Secondary Service Conduits	1	LS	\$	\$
4K	Telephone Service Conduit	1	LS	\$	\$
4L	Backstop Receptacles	1	LS	\$	\$
4M	Electrical Demolition	1	LS	\$	\$
4N	SCE Underground Coordination & Installation of Conduits & Manhole (Per SCE Plans)	1	LS	\$	\$
<b>5. Site Utilities</b>					
5A	Storm Drain HDPE (4"-18")	1,345	LF	\$	\$
5B	18"x18" Drop Inlet	4	EA	\$	\$
5C	12"x12" Drop Inlet	4	EA	\$	\$
5D	Storm Drain Manhole	3	EA	\$	\$
5E	Sewer PVC Pipe (4")	95	LF	\$	\$

5F	Domestic Water Pipe (2")	67	LF	\$	\$
5G	Curb Inlet	1	EA	\$	\$
5H	Sidewalk Underdrain	6	EA	\$	\$
5I	Cleanout	1	EA	\$	\$
<b>6. Paving/Concrete</b>					
6A	Concrete Paving 4", Natural Grey, Broom Finish	64,130	SF	\$	\$
6B	Concrete Paving 7" At Vehicular Area, Natural Grey, Broom Finish	5,140	SF	\$	\$
6C	Asphalt Concrete Paving, 3" Over 6" AB	18,860	SF	\$	\$
6D	Stabilized Decomposed Granite	31,544	SF	\$	\$
6E	6" Concrete Curb	1,270	LF	\$	\$
6F	6" Concrete Mow Curb	232	LF	\$	\$
6G	Play Area Curb	450	LF	\$	\$
<b>7. Ballfields</b>					
7A	Foul Ball Poles, 30'-0" High @ At Field #1	2	EA	\$	\$
7B	Safety Net 30' High	1,737	LF	\$	\$
7C	Aluminum Spectator Bleachers (4-Row, 27' Long) @ Field #1	2	EA	\$	\$
7D	Aluminum Spectator Bleachers (3-Row, 21' Long)	4	EA	\$	\$
7E	Aluminum Spectator Bleachers (3-Row, 15' Long)	1	EA	\$	\$
7F	Electronic Scoreboard @ Field #1	1	EA	\$	\$
7G	Electronic Scoreboards @ Field #2 & #3	2	EA	\$	\$

<i>Dugouts Amenities</i>					
7H	Bat Rack	6	EA	\$	\$
7I	Aluminum Players Bench (7'-6" Long; 3 Per Dugout)	18	EA	\$	\$
7J	All Ballfield Equipment	1	LS	\$	\$
<i>Backstops, Fences And Gates</i>					
7K	Field #1 - 30' H Chainlink Backstop W/ 8' Overhang	1	EA	\$	\$
7L	2" X 10" Plastic Lumber @ Field #1 30' Back Stop. Fields #2 And #3 20' Backstops.	327	LF	\$	\$
7M	Field #2 And #3 - 20' Back Stop	2	EA	\$	\$
7N	8' High Chainlink Fencing @ Field #1 Side Lines And Outfield	1,000	LF	\$	\$
7O	8' High Chainlink Fencing @ Field #1 Bull Pens And Dugouts	289	LF	\$	\$
7P	8' High Chainlink Fencing @ Fields #2 And #3 Side Lines And Outfield	1,277	LF	\$	\$
7Q	8' High Chainlink Fencing @ Field #2 And #3 Bull Pens, Dugouts, And Batting Cage	540	LF	\$	\$
7R	(8'H X 4'W) Chainlink Gates, Single	23	EA	\$	\$
7S	(8'H X 8'W) Chainlink Gates, Double	4	EA	\$	\$
7T	(8'H X 12'W) Chainlink Gates, Double	6	EA	\$	\$
<i>Site Sports Surfaces</i>					
7U	Decomposed Granite, Infield Mix @ Fields #1, #2 And #3, Bullpens And Batting Cage	52,000	SF	\$	\$
7V	Turf (Seed Ballfield)	114,124	SF	\$	\$
7W	9" Concrete Mow Curb At Fencing In Turf Areas	1,733	LF	\$	\$
<i>8. Site Amenities</i>					
8A	Drinking Fountains	2	EA	\$	\$
8B	Trash Receptacles	20	EA	\$	\$



8C	Dog Waste Station	2	EA	\$	\$
8D	Picnic Table ADA 8' Long	12	EA	\$	\$
8E	Picnic Table Standard 6' Long	15	EA	\$	\$
8F	Barbecue With Prep Table	9	EA	\$	\$
8G	Concrete Seatwall @ Ballfield	19	LF	\$	\$
8H	Play Area #1 @ North End	1	LS	\$	\$
8I	Play Area #2 @ South End	1	LS	\$	\$
8J	Play Area #3 @ Ballfields	1	LS	\$	\$
8K	Play Area Rubberized Surfacing	8,055	SF	\$	\$
8L	Bike Rack	3	EA	\$	\$
8M	Park Bench	11	EA	\$	\$
8N	2-Bay Trash Enclosure	1	EA	\$	\$
8O	Surface Mounted Collapsible Bollards	6	EA	\$	\$
8P	Fitness Equipment (7 Pieces Total)	1	LS	\$	\$
8Q	10'x30' Cantilever Shade Structure Over Bleachers At Field #1	2	EA	\$	\$
8R	10'x22' Cantilever Shade Structure Over Bleachers At Fields #2 & #3	4	EA	\$	\$
8S	14'x36' Cantilever Shade Shelter At Skatepark	1	EA	\$	\$
8T	50' Flagpole	1	EA	\$	\$
8U	Permaloc Cleanline Aluminum Edging	444	LF	\$	\$
<b>9. Fencing</b>					
9A	4' High Tube Steel Fencing	690	LF	\$	\$
9B	6' High Chainlink Fencing	1,577	LF	\$	\$

9C	(6' H x 12' W) Chainlink Gates, Double	4	EA	\$	\$
<b>10. Landscape, Planting, and Irrigation</b>					
10A	24" and 36" Box Trees	116	EA	\$	\$
10B	Soil Preparation For Planting Areas	1,294	SF	\$	\$
10C	1 Gallon Shrubs	1,294	SF	\$	\$
10D	Soil Preparation For Turf (Passive Areas)	55,733	SF	\$	\$
10E	Turf (Seed) (Passive Areas)	55,733	SF	\$	\$
10F	All Irrigation	1	LS	\$	\$
10G	Maintenance And Plant Establishment Period	90	WD	\$	\$
11	Restroom/Concession/Storage Building	1	EA	\$	\$
12	Restroom Building	1	EA	\$	\$
13	Skatepark	1	LS	\$	\$
14	Signage (Grant Funding Notification)	1	LS	\$	\$
15	Entry Monument	1	LS	\$	\$
16	Existing Olive Bowl Signage Relocation/Renovation	1	LS	\$	\$
17	Parking Lot Signage, Striping and Wheel Stops & ADA Ramp	1	LS	\$	\$
18	Existing Memorial Removal and Relocation	1	LS	\$	\$
19	Existing Shade Shelter Removal and Relocation	1	LS	\$	\$
20	Miscellaneous Items: Any Additional Items Not Contained On The Bid Schedule But Called For On Plans Or Specs And/Or Needed To Complete Work Necessary To Provide And Install All Listed Items To Be Included Under This LS Item. Contractor To Provided Separate Detailed List Of Any Item Included Under This Category	1	LS	\$	\$

**\*Total Base Bid Schedule Amount (\$):** \_\_\_\_\_

**\*Total Amount of Base Bid Schedule (Written in Words) is:**

\_\_\_\_\_ Dollars and \_\_\_\_\_ Cents

**Alternate Bid Schedule**

Item No.	Description	Quantity	Unit	Unit Price	Total Price
1	6" High Block Wall (Located at West Side of Property)	684	LF	\$	\$
2	4" Concrete Trail (Replacement of Decomposed Granite Area)	13,720	SF	\$	\$
3	7" Vehicular Concrete Paving	8,798	SF	\$	\$
4	Synthetic Turf Surfacing (Located at Bull Pens)	3,509	SF	\$	\$

**\*Total Alternate Bid Schedule Amount (\$):** \_\_\_\_\_

**\*Total Amount of Alternate Bid Schedule (Written in Words) is:**

\_\_\_\_\_ Dollars and \_\_\_\_\_ Cents.

	Description	Total Price
1.	Total Amount of Base Bid Schedule	\$
2.	Total Amount of Alternate Bid Schedule	\$
<b>*Total Amount of Base Bid + Alternate Bid Schedule</b>		\$

**\*Total Amount of Base Bid + Alternate Bid Schedule (Written in Words) is:**

\_\_\_\_\_ Dollars and \_\_\_\_\_ Cents.

*\*In the event of discrepancy between words and figures, the words shall prevail and in the event of discrepancy between unit prices and total, the unit prices shall prevail.*

- Mobilization shall not exceed 5% of the total bid amount.

**BID SCHEDULE**  
**City of Lindsay**  
**Olive Bowl/Kaku Park Expansion**  
**Page 9 of 9**

Individual Contractor Name:

\_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Partnership Name:

\_\_\_\_\_

Business

Address: \_\_\_\_\_

\_\_\_\_\_

By: \_\_\_\_\_

Partner.

Other

Partners: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corporation Name:

\_\_\_\_\_

Business Address:

\_\_\_\_\_

\_\_\_\_\_

By: \_\_\_\_\_,

President.

\_\_\_\_\_,

Secretary

(Corporate Seal)

Organized under the State laws of;

\_\_\_\_\_

**Specifications for:**

**Olive Bowl/  
Kaku Park  
Expansion**

**March 2023**



**109 W. Union Ave.  
Fullerton, CA 92832  
(714) 871-3638**

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## SECTION 01010 – SUMMARY OF WORK

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, apply except as modified herein.

### A. Work Covered By Contract Documents:

The work covers park improvements to Olive Bowl Park, Lindsay, California. Work includes clearing, grading, paving, site utilities, electrical service, security and sports lighting, ball fields, chain link backstop, skate park, play areas, exercise stations, site furnishings, welcome sign, concrete headers, walks, slabs and curbs, asphalt base and paving, masonry block walls, ornamental fencing, restroom/concession buildings, shade shelters, water quality detention, decomposed granite paving, landscape planting, automatic irrigation system, 30 day plant establishment period and 60 day project maintenance. The work to be performed shall include, but not be limited to, the items described. All work shall include the furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals necessary to install and complete the work contemplated per the plans and specifications.

### B. Related Work Specified Elsewhere:

- Construction Schedule: Section 01310
- Schedule of Values: Section 01370
- Temporary Facilities and Controls: Section 01500
- Products and Materials: Section 10600
- Landscape Planting: Section 02900

### C. Contractor's Duties:

Arrange and pay for all off-site inspection of the work required by ordinance or governing authorities. The Contractor shall also arrange and pay for other inspections, including tests in connection therewith, as may be assigned to it in other sections of the specifications.

Comply with codes, ordinances, rules, regulations orders, and other legal requirements of public authorities which bear on performance of work.

### D. Contracts:

Construct entire work under single lump sum price contract.

### E. Allotted Working Space:

A reasonable space will be assigned. All materials and equipment shall be kept within this space with no liability to the Agency.

### F. Acceptance of Site:

The Contractor shall accept the site and the character of the work as they exist on the first day of work under this contract.

### G. Survey and Layout:

Contractor shall verify all dimensions on the drawings and shall report to the Agency Representative any discrepancies before proceeding with related work. Contractor shall perform all survey and layout work.

### H. Maintenance of Existing Plantings:

The Contractor shall protect and maintain all existing trees and plantings to remain from the first day of work under this contract to acceptance.

**I. Not in Contract:**

Items shown on the contract drawings, but marked N.I.C., are not included in this contract.

**J. Limits of Work:**

Limits of work shall be the legal property boundaries unless modified by Contract limit lines indicated on the plans or as noted otherwise.

**END OF SECTION**

## SECTION 01030 – ALTERNATES

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, apply except as modified herein.

The contractor shall review and become familiar with pertinent specifications affected by listed Alternates.

This section describes the changes to be made under each Alternate.

Additional specification sections contain the pertinent requirements for materials and methods affecting the described Alternates.

Coordinate pertinent related work and modify surrounding work as required to complete the project under each Alternate designated in the Agreement.

#### A. Description Of Alternates:

ADDITIVE ALTERNATE NO. 1. Include all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals necessary for completion of the construction of a 6' high block wall in lieu of the 6' chain link fencing at the west side of the property as indicated on the additive alternate plans.

ADDITIVE ALTERNATE NO. 2. Include all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals necessary for completion of the construction of 4" concrete trail in lieu of the stabilized decomposed granite trail as indicated on the additive alternate plans.

ADDITIVE ALTERNATE NO. 3. Include all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals necessary for completion of the construction of 7" vehicular concrete paving in lieu of asphalt paving at the west side of the site as indicated on the additive alternate plans.

ADDITIVE ALTERNATE NO. 4. Include all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals necessary for completion of the construction of synthetic turf surfacing at the bull pens in lieu of decomposed granite as indicated on the additive alternate plans.

**END OF SECTION**

## SECTION 01045 – CUTTING AND PATCHING

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, apply except as modified herein.

#### A. Related Work Specified Elsewhere:

Summary of Work: Section 01010  
Earthwork and Grading: Section 02200  
Asphalt Concrete Paving: Section  
02510  
Site Drainage: Section 02720  
Concrete: Division 3

#### B. Description:

Execute cutting (including excavating), fitting or patching of work required to:

Make several parts fit properly;  
Uncover work to provide for ill-timed work;  
Remove and replace defective work;  
Remove and replace work not conforming to the Contract Documents;  
Remove samples of installed work as required for testing;  
Install specified work in existing construction;  
Properly join work by others.

In addition to contract requirements, upon written instructions of the Agency Representative:

Uncover work to provide for Agency Representative's observation of covered work;  
Remove samples of installed materials for testing;  
Remove work to provide for alteration of existing work.

Do not endanger any work by cutting or altering work or any part of it.

#### C. Submittals:

Prior to cutting which affects structural safety of work or work of another Contractor, submit written notice to the Agency Representative requesting consent to proceed with cutting, including:

Identification of the work;  
Description of affected work;  
Necessity for cutting;  
Effect on other work, on structural integrity of the project;  
Description of proposed work.  
Designate:  
Scope of cutting and patching;  
Contractor and trades to execute work;  
Products proposed to be used;  
Extent of refinishing;  
Alternatives to cutting and patching;  
Designation of party responsible for cost of cutting and patching.

Prior to cutting and patching done on instruction of Agency Representative, submit cost estimate. Should conditions of work or schedule indicate change of materials or methods, submit written recommendations to Agency Representative, including:

- Conditions indicating change;
- Recommendations for alternative materials or methods;
- Submittals as required for substitutions.
- Submit written notice to Agency Representative, designating time work will be uncovered, to provide for observation.

**D. Payment for Costs:**

Costs caused by ill-timed or defective work, or work not conforming to Contract Documents, including costs for additional services of the Landscape Architect shall be borne by Contractor.

Work done on instructions of the Agency Representative, other than defective or non-conforming work shall be borne by Agency.

**II. PRODUCTS**

Materials for replacement of work removed shall comply with specifications for type of work to be done.

**III. EXECUTION**

**A. Inspection:**

Inspect existing conditions of work, including elements subject to movement or damage during cutting and patching or excavating and back-filling.

After uncovering work, inspect conditions affecting installation of new products.

**B. Preparation:**

Before cutting provide shoring, and support as required to maintain structural integrity of project; provide protection for other portions of project; and provide protection from the elements.

**C. Performance:**

Execute fitting and adjustment of products to provide finished installation complying with specified tolerances and finishes.

Execute cutting and demolition by methods which will prevent damage to other work, and will provide proper surfaces to receive installation of repairs and new work.

Execute excavating and backfilling as specified in Section 02200 - Earthwork and Grading.

Restore work which has been cut or removed; install new products to provide completed work conforming to Contract Documents.

Refinish entire surfaces as necessary to provide an even finish:

- Continuous surfaces - to nearest intersections.
- Assembly - entire refinishing.

**END OF SECTION**

## SECTION 01150 – BID FORM, MEASUREMENT AND PAYMENT

### I. GENERAL

#### I. Bid:

The Bid contains items for the renovations at Olive Bowl Park.

#### II. Schedule of Values:

Submit to the Engineer within 10 days after the execution of the Contract a breakdown of each bid item in a form which will assist the Engineer in preparing the estimates for progress payments.

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, apply except as modified herein.

#### III. Related Requirements Specified Elsewhere:

Project Meetings: Section 01200  
Construction Schedule: Section 01310

#### IV. Submit to Agency:

Schedule of Values, at least twenty 20 calendar days prior to first progress payment estimate. Upon Agency Representative's request, support values given with substantiating data. Quantities of designated materials.

#### V. Schedule of Values:

Used only as a basis for Progress Payment.

#### VI. Form of Submittal

Typewritten on 8.5" x 11" white bond paper.

Use Table of Contents of this Specification for format for listing costs of work for Sections under Divisions 2 through 16. Identify each line item with number and title.

#### VII. Preparing Schedule Of Values

Itemize separate line item cost for work required by each section of this specification. Break to indicate total installed cost, with overhead and profit.

Round off figures to nearest dollar.

Make sum of total costs of all items listed in schedule equal to total Contract sum.

#### VIII. Review and Submittals

After review by Agency Representative, revise and resubmit schedule as required. Resubmit revised schedules in same manner.

#### IX. Work Listed in the Schedule of Work Items:

The price of these items includes full compensation for furnishing the labor, materials, tools, and equipment and doing all the work involved to complete the Work in the Contract Document, and no additional compensation will be allowed. An "approved equal" to the specifications of materials, structures, and processes may be used given approval from the Agency and its respective Engineer. However, if the material, structure, process, or article offered by the Contractor is not, in the opinion of the Engineer, equal to that specified, then the Contractor must furnish the material, structure process or article specified, or one which in the opinion of the Agency Representative is the equal thereof in all essential characteristics. The work involved includes but is not limited to:

1. **Mobilization, Demobilization and Cleanup:** Work under this item shall include the preparatory and cleanup

operations including, but not limited to, those necessary for the movement of personnel, equipment, materials and incidentals to and from the project site, securing temporary construction yard and/or fencing, and maintaining the project site in a safe and orderly manner during construction. This item also includes cost incurred for securing bonds, insurance and financing prior to beginning work.

2. **Demolition:** Work under this item shall include, but not limited to, compensation for providing personnel, equipment, tools, and materials necessary for the removal of green waste and other existing playground equipment, electrical poles, fencing, ballfields and structures, and other items indicated on the drawings or other items needed to construct improvements. All irrigation equipment to be salvaged and given to maintenance personnel.
3. **Earthwork/Grading:** Work under this item shall include, but not limited to, compensation for providing personnel, equipment, tools, and materials necessary for performing all work required including excavation, grading operations, earthwork, compacting, backfilling, testing, construction surveying and staking, exporting, construction of subgrade, construction of fine grade, soil preparation, erosion control, dust control, sedimentation control, and Storm Water Pollution Prevention Plan, etc., necessary to complete the project.
4. **Site Electrical:** Work under this item shall include, but not limited to, compensation for providing personnel, equipment, tools, and materials necessary for all work required including the installation of lighting, panels, switchboards, conduits, connectors, receptacles, and outlets, electrical demolition, etc. as per the drawings.
5. **Site Utilities:** Work under this item shall include, but not limited to, compensation for providing personnel, equipment, tools, and materials necessary for performing all work required including utilities (sewer, water, storm drain), utility connections, trenching, furnishing and installing drain lines, backfilling, compacting, testing, inspection, clean up, etc. as per the drawings.
6. **Paving/Concrete:** Work under this item shall include, but not limited to, compensation for providing personnel, equipment, tools, and materials necessary for performing all work required including soil base preparation, decomposed granite paving and stabilizer, infield mixes, installing rebar, concrete forms, footings, concrete flatwork, poured in place, testing, clean up, etc. as per the drawings.
7. **Ballfields:** Work under this item shall include, but not limited to, compensation for providing personnel, equipment, tools, and materials necessary for performing all work required for the ballfield areas including the ballfields, bleachers, scoreboards, bat racks, backstops, fencing, gates, bull pens, dugouts, batting cages, decomposed granite, turf, concrete, etc. as per the drawings.
8. **Site Amenities:** Work under this item shall include, but not limited to, compensation for providing personnel, equipment, tools, and materials necessary for performing all work required for the site amenities including the installation of the drinking fountains, trash receptacles, dog waste stations, picnic tables, BBQ, concrete seatwall, play areas, bike rack, trash enclosure, benches, removable bollards, fitness equipment, shade structures, flag pole, metal edging, etc. as per the drawings.
9. **Fencing:** Work under this item shall include, but not limited to, compensation for providing all personnel, equipment, tools, and materials necessary for performing all work required for the installation of steel and chain link fencing, posts, footings, etc. as per the drawings.
10. **Landscape, Planting, and Irrigation:** Work under this item shall include, but not limited to, compensation for providing all personnel, equipment, tools, and materials necessary for performing all work required for a new irrigation system, keep irrigation system beyond the work area in operation throughout the construction period, booster pump, rotors, finish grade work area, soil preparation and install new turf in disturbed area as per drawings.
11. **Restroom/Concession/Storage Building:** Work under this item shall include, but not limited to, compensation for providing all personnel, equipment, tools, and materials necessary for the restroom/concession/storage building, pad preparation, footings, testing, inspection, utility connections, clean up, etc. as per the drawings.
12. **Restroom Building:** Work under this item shall include, but not limited to, compensation for providing all personnel, equipment, tools, and materials necessary for the restroom building, pad preparation, footings, testing, inspection, utility connections, clean up, etc. as per the drawings.
13. **Skatepark:** Work under this item shall include, but not limited to, compensation for providing personnel, equipment, tools, and materials necessary for performing all work required for the skate park including soil base preparation, installing rebar, concrete forms, footings, concrete flatwork, poured in place, installing steel coping, rails and edges, drains, testing, shop drawings, fabrication of all steel rails, coping, metal edges, guardrails, gates, attachments, anchors,



grinding, priming, painting, core drilling, installing, etc., as per the drawings.

14. **Signage:** Work under this section shall include, but not limited to, furnishing all materials, tools, and equipment in performing all work required for the fabrication of two (2) grant funding notification signs per the guidelines specified in Attachment B.
15. **Entry Monument:** Work under this section shall include, but not limited to, furnishing all materials, tools, and equipment in performing all work required for the entry monument, as per the drawings.
16. **Existing Olive Bowl Signage Relocation/Renovation:** Work under this section shall include, but not limited to, furnishing all materials, tools, and equipment in performing all work required for the relocation and renovation of the existing Olive Bowl sign, as per the drawings.
17. **Parking Lot Signage, Striping and Wheel Stops & ADA Ramp:** Work under this section shall include, but not limited to, furnishing all materials, tools, and equipment in performing all work required for the all the signage and striping, as per the drawings.
18. **Existing Memorial Removal and Relocation:** Work under this section shall include, but not limited to, furnishing all materials, tools, and equipment in performing all work required for the removal and relocation of the existing memorial, as per the drawings.
19. **Existing Shade Shelter Removal and Relocation:** Work under this section shall include, but not limited to, furnishing all materials, tools, and equipment in performing all work required for the removal and relocation of the existing shade shelter, as per the drawings.
20. **Miscellaneous Items:** Work under this section shall include, but not limited to, furnishing all materials, tools, and equipment in performing all work required for any additional items not contained on the Bid Schedule but called for on plans or specs and/or needed to complete work necessary to provide and install all listed items to be included under this LS item. Contractor to provided separate detailed list of any item included under this category.

## II. MEASUREMENT AND PAYMENT (BREAKDOWN OF SCHEDULE OF VALUES)

### Base Bid Schedule

- **Bid Item No. 1 – Mobilization, Demobilization and Cleanup:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for the preparatory and cleanup operations including, but not limited to, those required for the movement of personnel, equipment, materials and incidentals to and from the project site, securing temporary construction yard and/or fencing, sanitation facilities, and maintaining the project site in a safe and orderly manner during construction. This item also includes cost incurred for securing bonds, insurance and financing prior to beginning work. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 2A – Clear and Grub Softscape:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the clearing and grubbing of the softscape areas, included but not limited to, the subsurface region of the softscape areas, per the plans. This bid item will be paid for per Square Foot.
- **Bid Item No. 2B – Existing Trees:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for removing all the specified existing trees along with grinding the stump to a minimum of 12” below the finished surface, per the plans. This bid item will be paid as Each.
- **Bid Item No. 2C – Existing Hardscape:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for removing all the hardscape areas, included but not limited to, the subsurface region of the hardscape areas, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 2D – Existing Playground (Equipment, Footings And Surfacing):** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for removing the existing playground, included but not limited to, equipment, footings, surfacing, and all other materials relating to the removal of the existing playground, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 2E – Existing Electrical Poles:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for removing the existing electrical poles, included but not limited to, associated footings, conduits, lights, poles, bolts, sensors, controllers, and wires, per the plans, and any other structures

relating to the removal of the existing electrical poles, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.

- **Bid Item No. 2F – Existing Fencing:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for removing the existing fencing, included but not limited to, associated poles, rails, posts, footings and any other structures relating to the removal of the fencing, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 2G – Miscellaneous Demo Items Needed to Construct All Improvements:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for removing any miscellaneous items, not already specified, included but not limited to, and any other structures relating to the removal of the miscellaneous items, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 2H – Existing Ballfields And Structures (All Fencing, Gates, Dugouts, Backstops, Bleachers, Concrete, Building, Footings Etc.):** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for removing the existing ballfields and structures, included but not limited to, fencing, gates, dugouts, backstops, bleachers, concrete, buildings, footings, and any other structures relating to the demolition of the existing ballfields, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 3A – Excavation & Grading:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for grading operations, earthwork, compacting, backfilling, testing, etc., per the plans and Geotechnical Report. This bid item will be paid for per Cubic Yard.
- **Bid Item No. 3B – Export:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals necessary for exporting of all materials from jobsite. This bid item will be paid for per Cubic Yard.
- **Bid Item No. 3C – Construct Subgrade, Fine Grade And Soil Preparation For Ball Fields:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for constructing the subgrade and fine grade, and the soil preparation work for the ballfields, included but not limited to, grading, earthwork, compacting, backfilling, and testing, per the plans and Geotechnical Report. This bid item will be paid for per Square Foot.
- **Bid Item No. 3D – Construction Staking And Surveying:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction staking and surveying required for the jobsite, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 3E – Erosion and Sedimentation Control:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required to perform erosion control measures, included but not limited to, prevention of adjacent streets, storm drains and property from accumulations of soil, sediment, and dust within the project limit areas and all surrounding project limit areas in accordance with the specifications, plans and these technical provisions. The Contractor is responsible for monitoring downstream conditions throughout the construction period and clearing any debris, sediment, and dust caused by the progress of the work, per the plans. The Contractor shall inspect, maintain, and clear erosion and sediment control devices, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 3F – Storm Water Pollution Prevention Plan Preparation and Implementation:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for doing all the work involved in “Storm Water Pollution Prevention,” complete in place, per the plans. This bid item includes implementation of the Storm Water Pollution Prevention Plan (SWPPP) requirements and dust control compliance as required by the SJVAPCD, as directed by the Engineer. The Contractor shall provide a water truck and approved street sweeper on project site for dust control compliance. The Contractor is responsible for uploading and obtaining the WDID number through the State Water Resources Control Board before the start of construction. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 4A – Field #1, #2, #3 & Skate Park LED Lighting:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for installing new LED lighting fixtures, included but not limited to, the installation of galvanized steel poles and associated wiring, LED drivers, controllers, circuits, surge protectors, luminaires, fusing, primary landing lugs, disconnected switches, concrete foundation, and all other construction work and materials required for the lighting fixtures at the field and skatepark areas, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.

- **Bid Item No. 4B – Walkway - LED Lights:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for installing new LED lighting fixtures, included but not limited to, associated control panels, arms, OD pole, reinforced handhole, grounding lugs, gasketed weatherproof cover, nuts, galvanized anchor bolts, bolt circle, base plate, grout, concrete footing, pull boxes, conduits, chamfer, programmable sensor controls, and all other construction work and materials required for the lighting fixtures at the walkway areas, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 4C – Parking Lot - LED Lights:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for installing new LED lighting fixtures, included but not limited to, associated control panels, arms, OD pole, reinforced handhole, grounding lugs, gasketed weatherproof cover, nuts, galvanized anchor bolts, bolt circle, base plate, grout, concrete footing, pull boxes, conduits, chamfer, programmable sensor controls, and all other construction work and materials required for the lighting fixtures at the parking lot areas, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 4D – Power For The Booster Pump And Irrigation Controllers:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for installing/providing power for the booster pump and irrigation controllers, included but not limited to, associated wires, pipes, conduits, testing, concrete footing, pumps, motors, electrical controls, assembly, receptacles, controller panel, and all other construction work and materials required for installing/providing power for the booster pump and irrigation controllers, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 4E – Security/Surveillance System:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for installing the security/surveillance system, included but not limited to, associated galvanized steel poles, aluminum base covers, galvanized anchor bolts, concrete bases, underground pull boxes, conduits, outlet boxes, wires, cables, extender/adaptor, circuits, mounting, underground electrical work, recorder, assembly, poles, panel, and all other construction work and materials required for installing the security/surveillance system, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 4F – Switchboard C And Power For The Concession/Restroom Building:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for installing/providing power for the switchboard “c” for the concession/restroom building, included but not limited to, light fixtures, mounting, concrete pad, receptacles, circuits, conduits, wires, anchoring, grading, panels, transformers, welding, bolting, cables, terminal blocks, circuit breakers, and all other construction work and materials required for installing/providing power for the switchboard “c” for the concession/restroom building, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 4G – Power For The Existing Restroom Building And Other Loads To Remain:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for installing/providing power for the existing restroom building and other loads to remain, included but not limited to, associated wires, pipes, conduits, testing, concrete footing, motors, electrical controls, assembly, receptacles, controller panel, and all other construction work and materials required for installing/providing power for the existing restroom building and other loads to remain, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 4H – Main Switchboard MSA/MSB:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for installing/providing power for Main Switchboard MSA/MSB, included but not limited to, underground pull sections, light fixtures, metering, mounting, concrete pad, receptacles, circuits, conduits, wires, anchoring, grading, control panels, transformers, welding, bolting, cables, terminal blocks, circuit breakers, and all other construction work and materials required for installing/providing power for Main Switchboard MSA/MSB, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 4I – Switchboard B And Power For The New Restroom Building:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for installing/providing power for the switchboard “b” for the new restroom building, included but not limited to, light fixtures, mounting, concrete pad, receptacles, circuits, conduits, wires, anchoring, grading, panels, transformers, welding, bolting, cables, terminal blocks, circuit breakers, and all other construction work and materials required for installing/providing power for the switchboard “b” for the new restroom building, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 4J – Primary And Secondary Service Conduits:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction and electrical work required for the installation/power of primary and secondary service conduits, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.

- **Bid Item No. 4K – Telephone Service Conduit:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances, and incidentals required for all the construction and electrical work required for the installation/power of telephone service conduits, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 4L – Backstop Receptacles:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction and electrical work required for the installation/power of the backstop receptacles, included but not limited to, grounding, mounting, wiring, and all other construction work and materials required for installing/providing power for the backstop receptacles, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 4M – Electrical Demolition:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the demolition of electrical materials, structures, equipment, connections, etc., per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 4N – SCE Underground Coordination & Installation of Conduits & Manhole (Per Plans):** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the Southern California Edison underground coordination work and the installation of conduits and manhole work, included but not limited to, all wiring, piping, testing, conduits, assembly, framing work, excavation, bedding, electrical ducts, bolts, backfilling, fiberglass materials, rods, clamps, riser bends, poles, cables, crushed rock, grading, tie-in work, PVC couplings, PVC piping, padding, placement of all materials, and all other work and materials necessary to complete the Southern California Edison underground coordination work and the installation of conduits and manhole work, per the plans and SCE plans (Attachment C). This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 5A – Storm Drain HDPE (4"-18"):** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the storm drain pipe, included but not limited to, piping, trench excavation and preparation, bedding, fittings, backfill, compaction and surface/pavement completion, worker protection, and other work and materials required to complete the construction work for installing the storm drain pipe, per the plans. This bid item will be paid for per Linear Foot.
- **Bid Item No. 5B – 18" X 18" Drop Inlet:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the drop inlet, included but not limited to, all excavation, bedding, backfilling, compaction, watering, furnishing and installing the cast-iron grate and lid, grading around the inlet, connecting to piping, and all other work and materials necessary to result in a complete and operating inlet, per the plans. This bid item will be paid per Each.
- **Bid Item No. 5C – 12" X 12" Drop Inlet:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the drop inlet, included but not limited to, all excavation, bedding, backfilling, compaction, watering, furnishing and installing the cast-iron grate and lid, grading around the inlet, connecting to piping, and all other work and materials necessary to result in a complete and operating inlet, per the plans. This bid item will be paid per Each.
- **Bid Item No. 5D – Storm Drain Manhole:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the storm drain manhole, included but not limited to, all excavation, bedding, backfilling, compaction, watering, furnishing and constructing the base, riser, cone section, grade rings, frame, lid, concrete collar, connecting to pipes, trench patching, and all other work and materials necessary to result in a complete and operating manhole, per the plans. This bid item will be paid for per Each.
- **Bid Item No. 5E – Sewer PVC Pipe (4"):** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the sewer PVC pipe, included but not limited to, piping, trench excavation and preparation, bedding, fittings, backfill, compaction and surface/pavement completion, worker protection, and other work and materials required to complete the construction work for installing the sewer PVC pipe, per the plans. This bid item will be paid for per Linear Foot.
- **Bid Item No. 5F – Domestic Water Pipe (2"):** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the domestic water pipe, included but not limited to, piping, trench excavation and preparation, bedding, fittings, backfill, compaction and surface/pavement completion, worker protection, and other work and materials required to complete the

construction work for installing the domestic water pipe, per the plans. This bid item will be paid for per Linear Foot.

- **Bid Item No. 5G – Curb Inlet:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the drop inlet, included but not limited to, all excavation, bedding, backfilling, compaction and surface/pavement completion, watering, furnishing and installing the grate and lid, grading around the inlet, connection to piping, dowels, anchors, and all other work and materials necessary to result in a complete and operating curb inlet, per the plans. This bid item will be paid per Each.
- **Bid Item No. 5H – Sidewalk Underdrain:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the sidewalk underdrain, included but not limited to, all excavation, backfilling, compaction and surface/pavement completion, watering, piping, grading around the underdrain, connection to piping, and all other work and materials necessary to result in a complete and operating sidewalk underdrain, per the plans. This bid item will be paid per Each.
- **Bid Item No. 5I – Cleanout:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the cleanout, included but not limited to, all excavation, backfilling, compaction and surface/pavement completion, watering, grading around the cleanout, connection to piping, frames and covers, and all other work and materials necessary to result in a complete and operating cleanout, per the plans. This bid item will be paid per Each.
- **Bid Item No. 6A – Concrete Paving 4", Natural Grey, Broom Finish:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the concrete paving, included but not limited to, excavation, furnishing the Portland Cement Concrete, subgrade preparation, compaction, testing, concrete forms, concrete finishing, joints, footings, concrete flatwork, doweling, material poured in place, clean up, and all other work and materials necessary to result in a complete the concrete paving work, per the plans. This bid item will be paid per Square Foot.
- **Bid Item No. 6B – Concrete Paving 7", Natural Grey, Broom Finish:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the concrete paving, included but not limited to, excavation, furnishing the Portland Cement Concrete, subgrade preparation, compaction, testing, concrete forms, concrete finishing, footings, joints, concrete flatwork, doweling, material poured in place, clean up, and all other work and materials necessary to complete the concrete paving work, per the plans. This bid item will be paid per Square Foot.
- **Bid Item No. 6C – Asphalt Concrete Paving, 3" Over 6" AB:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the asphalt concrete paving, included but not limited to, excavation, tack coating and other coating materials needed, grading, aggregate base material, furnishing the asphalt concrete pavement material, subgrade preparation, compaction, testing, material poured in place, clean up, and all other work and materials necessary to complete the asphalt concrete paving work over aggregate base, per the plans. This bid item will be paid per Square Foot.
- **Bid Item No. 6D – Stabilized Decomposed Granite:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the decomposed granite, included but not limited to, excavation, compaction, grading, watering, soil solidifiers, stabilizer (where required), subgrade preparation, testing, material poured in place, clean up, and all other work and materials necessary to complete the decomposed granite work, per the plans. This bid item will be paid per Square Foot.
- **Bid Item No. 6E – 6" Concrete Curb:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the concrete curb, included but not limited to, excavation, furnishing the approved concrete material, subgrade preparation, compaction, testing, joints, concrete forms, rebar, concrete finishing, footings, concrete flatwork, doweling, material poured in place, clean up, and all other work and materials necessary to complete the concrete curb work, per the plans. This bid item will be paid per Linear Foot.
- **Bid Item No. 6F – 6" Concrete Mow Curb:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the concrete mow curb, included but not limited to, excavation, furnishing the approved concrete material, subgrade preparation, grading, compaction, testing, rebar, finishing, forms, footings, concrete flatwork, doweling, joints, material poured in place, clean up, and all other work and materials necessary to complete the concrete mow curb work, per the plans. This bid item will be paid per Linear Foot.
- **Bid Item No. 6G – Play Area Curb:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the play area curb, included but not



limited to, excavation, furnishing the approved rubber/rubberized material, subgrade preparation, compaction, testing, aggregate base material, rebar, base mat, material placement, joints, and all other work and materials necessary to complete the play area curb work, per the plans. This bid item will be paid per Linear Foot.

- **Bid Item No. 7A – Foul Ball Poles, 30’- 0” High @ At Field #1:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the foul ball poles, included but not limited to, all concrete footings, poles, placement of the poles, excavation, backfilling, compacting, grading, foul ball pole accessories, and all other work and materials required to install the foul ball poles, per the plans. This bid item will be paid per Each.
- **Bid Item No. 7B – Safety Net 30’ High:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the safety net, included but not limited to, all steel cables, concrete footings, excavation, backfilling, compacting, grading, galvanized cables, mesh netting, posts, placement of the posts, and all other work and materials required to install the safety net, per the plans. This bid item will be paid per Linear Foot.
- **Bid Item No. 7C – Aluminum Spectator Bleachers (4-Row, 27’ Long) @ Field #1:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the aluminum spectator bleachers, included but not limited to, all filling, grading, bolts, drilling, concrete slabs, welding, steel base, assembly of spectator bleachers per manufacturer’s recommendations/instructions, cleaning, and all other work and materials required to install the aluminum spectator bleachers, per the plans. This bid item will be paid per Each.
- **Bid Item No. 7D – Aluminum Spectator Bleachers (3-Row, 21’ Long):** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the aluminum spectator bleachers, included but not limited to, all filling, grading, bolts, drilling, concrete slabs, welding, steel base, assembly of spectator bleachers per manufacturer’s recommendations/instructions, cleaning, and all other work and materials required to install the aluminum spectator bleachers, per the plans. This bid item will be paid per Each.
- **Bid Item No. 7E – Aluminum Spectator Bleachers (3-Row, 15’ Long):** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the aluminum spectator bleachers, included but not limited to, all filling, grading, bolts, drilling, concrete slabs, welding, steel base, assembly of spectator bleachers per manufacturer’s recommendations/instructions, cleaning, and all other work and materials required to install the aluminum spectator bleachers, per the plans. This bid item will be paid per Each.
- **Bid Item No. 7F – Electronic Scoreboard @ Field #1:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the electronic scoreboard, included but not limited to, all concrete footings, concrete bases, grading, poles, shop design and drawings, posts, tie in the scoreboard control, locks, receptacles, switches, assembly controller jack, covers, and all other work and materials required to install the electronic scoreboard, per the plans. This bid item will be paid per Each.
- **Bid Item No. 7G – Electronic Scoreboards @ Field #2 & #3:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the electronic scoreboard, included but not limited to, all concrete footings, concrete bases, grading, poles, posts, tie in the scoreboard control, locks, receptacles, switches, assembly controller jack, covers, and all other work and materials required to install the electronic scoreboard, per the plans. This bid item will be paid per Each.
- **Bid Item No. 7H – Bat Rack:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the bat rack, included but not limited to, all bolts, concrete footings, and all other work and materials required to install the bat rack per the plans. This bid item will be paid per Each.
- **Bid Item No. 7I – Aluminum Players Bench (7’-6” Long; 3 Per Dugout):** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the aluminum players bench, included but not limited to, all filling, grading, bolts, drilling, concrete slabs, welding, steel base, assembly of aluminum players bench per manufacturer’s recommendations/instructions, cleaning, and all other work and materials required to install the aluminum players bench, per the plans. This bid item will be paid per Each.
- **Bid Item No. 7J – All Ballfield Equipment:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of all ballfield equipment, included but not limited to, the installation and assembly of ballfield equipment per manufacturer’s

recommendations/instructions, cleaning, and all other work and materials required to install the ballfield equipment, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.

- **Bid Item No. 7K – Field #1 – 30’ H Chainlink Backstop W/ 8’ Overhang:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the chainlink backstop with the overhang, wings, rails, included but not limited to, fence galvanizing, rails, posts, concrete footing, welding, grinding, painting, subgrade compaction, infield surfacing, backfill, grading, excavation, and all other construction/installation work and materials required for the chainlink fencing installation at the backstop area, per the plans. This bid item will be paid per Each.
- **Bid Item No. 7L – 2” X 10” Plastic Lumber @ Field #1 30’ Back Stop. Fields #2 And #3 20’ Backstops:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the plastic lumber, per the plans, specifications and recommendations. This bid item will be paid per Linear Foot.
- **Bid Item No. 7M – Field #2 And #3 – 20’ Back Stop:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the chainlink backstop, included but not limited to, fence galvanizing, rails, posts, wings, rails, concrete footing, welding, grinding, painting, subgrade compaction, infield surfacing, backfill, grading, excavation, and all other construction/installation work and materials required for the chainlink fencing installation at the backstop area, per the plans. This bid item will be paid per Each.
- **Bid Item No. 7N – 8’- 0” High Chainlink Fencing @ Field #1 Side Lines And Outfield:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the chainlink fencing, include, but not limited to, fence galvanizing, rails, posts, padding, concrete footing, mesh gauge fence, excavation and preparation, backfill, grading, compaction and surface/pavement completion, and all other construction/installation work and materials required for the chainlink fencing, per the plans. This bid item will be paid for per Linear Foot.
- **Bid Item No. 7O – 8’- 0” High Chainlink Fencing @ Field #1 Bull Pens And Dugouts:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the chainlink fencing, include, but not limited to, fence galvanizing, windscreens, rails, posts, padding, concrete footing, mesh gauge fence, excavation and preparation, backfill, grading, compaction and surface/pavement completion, and all other construction/installation work and materials required for the chainlink fencing, per the plans. This bid item will be paid for per Linear Foot.
- **Bid Item No. 7P – 8’- 0” High Chainlink Fencing @ Fields #2 And #3 Side Lines And Outfield:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the chainlink fencing, include, but not limited to, fence galvanizing, windscreens, rails, posts, padding, concrete footing, mesh gauge fence, excavation and preparation, backfill, grading, compaction and surface/pavement completion, and all other construction/installation work and materials required for the chainlink fencing, per the plans. This bid item will be paid for per Linear Foot.
- **Bid Item No. 7Q – 8’- 0” High Chainlink Fencing @ Field #2 And #3 Bull Pens, Dugouts, And Battling Cage:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the chainlink fencing, include, but not limited to, fence galvanizing, windscreens, rails, posts, padding, concrete footing, mesh gauge fence, excavation and preparation, backfill, grading, compaction and surface/pavement completion, and all other construction/installation work and materials required for the chainlink fencing, per the plans. This bid item will be paid for per Linear Foot.
- **Bid Item No. 7R – (8’ H X 4’W) Chainlink Gates, Single:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the chainlink single gates, included but not limited to, fence galvanizing, post caps, rails, posts, padding, bars, concrete footing, mesh gauge fence, tie wires, single gate fork latch, welding, excavation and preparation, backfill, grading, compaction and surface/pavement completion, and all other construction/installation work and materials required for the chainlink single gates, per the plans. This bid item will be paid per Each.

- **Bid Item No. 7S – (8’H X 8’W) Chainlink Gates, Double:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the chainlink double gates, included but not limited to, fence galvanizing, rails, post caps, posts, padding, bars, concrete footing, mesh gauge fence, tie wires, latches, welding, excavation and preparation, backfill, grading, compaction and surface/pavement completion, and all other construction/installation work and materials required for the chainlink double gates, per the plans. This bid item will be paid per Each.
- **Bid Item No. 7T – (8’H X 12’W) Chainlink Gates, Double:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the chainlink double gates, included but not limited to, fence galvanizing, rails, post caps, posts, padding, bars, concrete footing, mesh gauge fence, tie wires, latches, welding, excavation and preparation, backfill, grading, compaction and surface/pavement completion, and all other construction/installation work required for the chainlink double gates, per the plans. This bid item will be paid per Each.
- **Bid Item No. 7U – Decomposed Granite, Infield Mix – Fields #1, #2, And #3, Bullpens And Battling Cage:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the decomposed granite, included but not limited to, excavation, compaction, grading, mixing, watering, soil solidifiers, stabilizer (where required), subgrade preparation, testing, material poured in place, clean up, and all other work and materials necessary to complete the decomposed granite work, per the plans. This bid item will be paid per Square Foot.
- **Bid Item No. 7V – Turf (Seed Ballfield):** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction, landscaping, and installation required for all the construction work required for the turf areas at the ballfield, per the plans. This bid item will be paid as Square Foot.
- **Bid Item No. 7W – 9” Concrete Mow Curb At Fencing In Turf Areas:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the concrete mow curb, included but not limited to, excavation, furnishing the approved concrete material, subgrade preparation, grading, compaction, testing, rebar, finishing, forms, footings, concrete flatwork, doweling, joints, material poured in place, clean up, and all other work and materials necessary to complete the concrete mow curb work, per the plans. This bid item will be paid per Linear Foot.
- **Bid Item No. 8A – Drinking Fountains:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the drinking fountains, included but not limited to, all filling, grading, concrete work, tie in connection to sanitary sewer lines, PVC piping, pressure regulators, assembly of drinking fountains per manufacturer’s recommendations/instructions, cleaning, and all other work and materials required to install the drinking fountains, per the plans. This bid item will be paid per Each.
- **Bid Item No. 8B – Trash Receptacles:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the trash receptacles, included but not limited to, all bolting, concrete padding, compaction of the subgrade, concrete paving, decomposed granite work, assembly of trash receptacles per manufacturer’s recommendations/instructions and all other work and materials required to install the trash receptacles, per the plans. This bid item will be paid per Each.
- **Bid Item No. 8C – Dog Waste Station:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the dog waste station, per the plans. This bid item will be paid per Each.
- **Bid Item No. 8D – Picnic Table ADA 8’ Long:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the ADA accessible picnic tables, per the plans. This bid item will be paid per Each.
- **Bid Item No. 8E – Picnic Table Standard 6’ Long:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the standard picnic tables, per the plans. This bid item will be paid per Each.
- **Bid Item No. 8F – BBQ With Prep Table:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the barbecue with prep table, including but not limited to, grout pockets, concrete footings, finishing, coating, assembly of trash barbecue unit per manufacturer’s recommendations/instructions and all other work and materials required to install the barbecue unit, per the plans. This bid item will be paid per Each.



- **Bid Item No. 8G – Concrete Seatwall @ Ballfield:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the barbecue with prep table, including but not limited to, recycled lumber material, concrete bench, lumber caps, coating and finishing, bolts, rebars, joints, concrete seatwalls, collar ties, subgrade compaction, excavation, assembly of the concrete seatwall and all other work and materials required to install the concrete seatwall, per the plans. This bid item will be paid per Linear Foot.
- **Bid Item No. 8H – Play Area #1 @ North End:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the play areas, including but not limited to, assembly of play area per manufacturer’s recommendations/instructions and all other work and materials required to install the play area at the north end, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 8I – Play Area #2 @ South End:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the play areas, including but not limited to, assembly of play area per manufacturer’s recommendations/instructions and all other work and materials required to install the play area at the south end, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 8J – Play Area #3 @ Ballfields:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the play areas, including but not limited to, assembly of play area per manufacturer’s recommendations/instructions and all other work and materials required to install the play area at the ballfields, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 8K – Play Area Rubberized Surfacing:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation and application of rubberized surfacing at the play areas, including but not limited to, installation of rubberized surfacing at play area per manufacturer’s recommendations/instructions and all other work and materials required to apply rubberized surfacing at the play areas, per the plans. This bid item will be paid per Square Foot.
- **Bid Item No. 8L – Bike Rack:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of bike rack, including but not limited to, assembly of bike rack per manufacturer’s recommendations/instructions and all other work and materials required to install the bike rack, per the plans. This bid item will be paid per Each.
- **Bid Item No. 8M – Park Bench:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of park bench, including but not limited to, bolts, concrete paving, assembly of park bench per manufacturer’s recommendations/instructions and all other work and materials required to install the park bench, per the plans. This bid item will be paid per Each.
- **Bid Item No. 8N – 2-Bay Trash Enclosure:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the 2-bay trash enclosure, including but not limited to, concrete block wall, tubes, gate hinges, rods, welding, bolts, grout, CMU wall, compaction, subgrade preparation, concrete footings, mortar doomed caps, concrete paving, rebars, steel post, expansion joints, steel angle backing, priming, painting, galvanized metal, and all other work and materials required to install the 2-bay trash enclosure, per the plans. This bid item will be paid per Each.
- **Bid Item No. 8O – Collapsible Bollards:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the collapsible bollards, including but not limited to, an anchoring system, assembly of the collapsible bollards per manufacturer’s recommendations/instructions and all other work and materials required to install the collapsible bollards, per the plans. This bid item will be paid per Each.
- **Bid Item No. 8P – Fitness Equipment (7 Pieces Total):** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the furnishing of all of the fitness equipment, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.

- **Bid Item No. 8Q – 10'x 30' Cantilever Shade Structure Over Bleachers At Field #1:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the cantilever shade structure over the bleachers, including but not limited to, assembly of the cantilever shade structure per manufacturer's recommendations/instructions and all other work and materials required to install cantilever shade structure over the bleachers, per the plans. This bid item will be paid per Each.
- **Bid Item No. 8R – 10'x 22' Cantilever Shade Structure Over Bleachers At Fields #2&#3:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the cantilever shade structure over the bleachers, including but not limited to, assembly of the cantilever shade structure per manufacturer's recommendations/instructions and all other work and materials required to install cantilever shade structure over the bleachers, per the plans. This bid item will be paid per Each.
- **Bid Item No. 8S – 14'x 36' Cantilever Shade Structure At Skatepark:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the cantilever shade structure at the skatepark, included but not limited to, assembly of the cantilever shade structure per manufacturer's recommendations/instructions and all other work and materials required to install cantilever shade structure at the skatepark, per the plans. This bid item will be paid per Each.
- **Bid Item No. 8T – 50' Flagpole:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the flagpole, included but not limited to, grading, compaction of the subgrade, galvanized steel plate and wedges, shop calculations, jam sleeves, bearings, concrete footings, caulking, aluminum flashing collar, piping, drypack, sealant, metal tubing, painting, all other work and materials required to install the flagpole, per the plans. This bid item will be paid per Each.
- **Bid Item No. 8U – Permaloc Cleanline Aluminum Edging:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the permaloc cleanline aluminum edging, included but not limited to, assembly of the permaloc cleanline aluminum edging per manufacturer's recommendations/instructions and all other work and materials required to install the permaloc cleanline aluminum edging, per the plans. This bid item will be paid per Linear Foot.
- **Bid Item No. 9A – 4' High Tube Steel Fencing:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the tube steel fencing, include, but not limited to, shop drawings and design, steel skate soppers, welding, joints, coating, concrete footings, steel pickets, posts, rails, excavation and preparation, backfill, grading, compaction and surface/pavement completion, and all other construction/installation work and materials required for the tube steel fencing, per the plans. This bid item will be paid for per Linear Foot.
- **Bid Item No. 9B – 6' High Chainlink Fencing:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the chainlink fencing, include, but not limited to, fence galvanizing, rails, posts, concrete footing, mesh gauge fence, excavation and preparation, backfill, grading, compaction and surface/pavement completion, and all other construction/installation work and materials required for the chainlink fencing, per the plans. This bid item will be paid for per Linear Foot.
- **Bid Item No. 9C – (6' H x 12' W) Chainlink Gates, Double:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction work required for the installation of the chainlink fencing, include, but not limited to, fence galvanizing, rails, posts, concrete fencing, mesh gauge fence, excavation and preparation, backfill, grading, compaction and surface/pavement completion, and all other construction/installation work and materials required for the chainlink fencing, per the plans. This bid item will be paid as Each.
- **Bid Item No. 10A – 24" and 36" Box Trees:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction and installation required for the 24" and 36" box trees, included but not limited to, drip lines, fertilizer, testing, grading, backfilling, and all other construction/installation work and materials required for the trees, per the plans. This bid item will be paid as Each.
- **Bid Item No. 10B – Soil Preparation For Planting Areas:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction and landscaping required for the soil preparation for the planting areas, included but not limited to, testing, grading, excavation and all other construction work and materials required for soil preparation for the planting areas, per the plans. This bid item will be paid as Square Foot.
- **Bid Item No. 10C – 1 Gallon Shrubs:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction and installation required for the 1-gallon shrubs,

included but not limited to, drip lines, fertilizer, grading, testing, backfilling and all other construction/installation work and materials required for the shrubs, per the plans. This bid item will be paid as Square Foot.

- **Bid Item No. 10D – Soil Preparation For Turf (Passive Areas):** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction and landscaping required for the soil preparation for the turf areas, included but not limited to, testing, grading, excavation and all other construction work and materials required for soil preparation for the turf areas, per the plans. This bid item will be paid as Square Foot.
- **Bid Item No. 10E – Turf (Seed) (Passive Areas):** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction, landscaping, and installation required for all the construction work and materials required for the turf areas at the passive areas, per the plans. This bid item will be paid as Square Foot.
- **Bid Item No. 10F – All Irrigation:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction and installation required for all the irrigation work required, and all other construction work and materials required for construction of the irrigation, per the plans. This bid item will be paid as Each. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 10G – Maintenance and Plant Establishment Period:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances, and incidentals for the maintenance of the landscaping/planting work required during the planting establishment period per the specifications and plans. This bid item will be paid per Working Day.
- **Bid Item No. 11 – Restroom/Concession/Storage Building:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction, installation, and fabrication required for the restroom/concession/storage building including, included but not limited to, shop drawings and design, installation of the restroom/concession/storage building per manufacturing instruction/recommendations, anti-graffiti painting and coating, concrete foundation, pad preparation, footings, testing, inspection, utility connections, clean up, and all other construction/installation/fabrication work required for the restroom/concession/storage building, per the plans. This bid item will be paid as Each.
- **Bid Item No. 12 – Restroom Building:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction, installation, and fabrication required for the restroom building including, included but not limited to, shop drawings and design, installation of the restroom building per manufacturing instruction/recommendations, anti-graffiti painting and coating, concrete foundation, pad preparation, footings, testing, inspection, utility connections, clean up, and all other construction/installation/fabrication work required for the restroom building, per the plans. This bid item will be paid as Each.
- **Bid Item No. 13 – Skatepark:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction, installation, and fabrication required for the skatepark, included but not limited to, shop drawings, concrete flatwork, quarterpipes, stairs, wedges, ledges, banks, caulking, grind rails, guard rails, pads, ledges, walls, grind launches, joints, sealant, concrete forms, rebar, anchors, metal edges, coping, gates, attachments, priming, painting, core drilling, dowels, straps, risers, soil base preparation work, drains, bracing, shoring, testing, cleanup, and all other construction work required for the skatepark, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 14 – Signage (Grant Funding Notification):** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances, and incidentals required for all the construction, installation, and fabrication required for two (2) grant funding notification signs per the guidelines specified in Attachment B. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 15 – Entry Monument:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances, and incidentals required for all the construction work required for the entry monument sign, included but not limited to, associated rods, posts, footings, bars, and all other construction work and materials required for the entry monument sign, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 16 – Existing Olive Bowl Signage Relocation/Renovation:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances, and incidentals required for all the construction work required for the renovation and relocation of the Olive Bowl sign, included but not limited to, all other construction work and materials required for the Olive Bowl sign, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.

- **Bid Item No. 17 – Parking Lot Signage, Striping and Wheel Stops & ADA Ramp:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances, and incidentals required for all the construction and installation work required for signage and striping, included but not limited to, signage and striping in the parking lot, wheel stops, and ADA ramps, and all other construction work and materials required for the signage and striping in the required areas, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 18 – Existing Memorial Removal and Relocation:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances, and incidentals required for all the construction work required for the removal and relocation of the existing memorial, included but not limited to, all other construction work and materials required for the existing memorial, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 19 – Existing Shade Shelter Removal and Relocation:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances, and incidentals required for all the construction work required for the removal and relocation of the existing shade shelter, included but not limited to, all other construction work and materials required for the existing shade shelter, per the plans. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.
- **Bid Item No. 20 – Miscellaneous Items:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances and incidentals required for all the construction, installation, and fabrication required for any additional items not contained on the Bid Schedule but called for on plans or specs and/or needed to complete work necessary to provide and install all listed items to be included under this LS item. Contractor to provided separate detailed list of any item included under this category. This bid item will be paid as a Lump Sum, based on percentage of contract work completed.

#### Alternate Bid Schedule

- **Alternate Bid Item No. 1 – 6” High Block Wall (Located at West Side of Property):** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances, and incidentals required for all the construction of a 6’ high block wall in lieu of the 6’ chain link fencing at the west side of the property as indicated on the additive alternate plans and per the plan details. This bid item will be paid for per Linear Foot.
- **Alternate Bid Item No. 2 – 4” Concrete Trail (Replacement of Decomposed Granite Area):** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances, and incidentals required for the all the construction of 4” concrete trail in lieu of the stabilized decomposed granite trail as indicated on the additive alternate plans and per the plan details. This bid item will be paid for per Square Foot.
- **Alternate Bid Item No. 3 – 7” Vehicular Concrete Paving:** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances, and incidentals required for the construction of 7” vehicular concrete paving in lieu of asphalt paving at the west side of the site as indicated on the additive alternate plans and per the plan details. This bid item will be paid for per Square Foot.
- **Alternate Bid Item No. 4 – Synthetic Turf Surfacing (Located at Bull Pens):** Payment under this item shall be for all furnishing of labor, services, tools, equipment, materials, appurtenances, and incidentals required for the construction of all the synthetic turf surfacing at the bull pens in lieu of decomposed granite as indicated on the additive alternate plans and per the plan details. This bid item will be paid for per Square Foot.

END OF SECTION

## **SECTION 01200 – PROJECT MEETINGS**

### **A. GENERAL**

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, apply except as modified herein.

#### **A. Related Requirements Specified Elsewhere:**

Summary of Work: Section 01010  
Construction Schedules: Section 01310  
Shop Drawings, Project Data, and Samples: Section 01340  
Project Record Documents: Section 01720

#### **B. Pre-Construction Meeting:**

Schedule within 10 calendar days after the issuance of the Notice to Proceed by Agency.

Minimum Attendance:

- Prime Contractor
- Major Subcontractors
- Landscape Architect
- Utility Representatives
- City Building and Safety Department
- City Engineer

#### **C. Progress Meetings:**

Schedule regular meetings at work site. Hold called meetings as progress of work dictates.

The Contractor and any or all of its subcontractors shall attend these meetings as directed by the Agency Representative.

**END OF SECTION**

## SECTION 01310 – CONSTRUCTION SCHEDULE

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, apply except as modified herein.

#### A. Related Requirements Specified Elsewhere:

Summary of Work: Section 01010  
Products: Individual Sections - Divisions 2-16.  
Provide projected construction schedule for entire work. Revise periodically.

#### B. Form of Schedule:

Horizontal bar chart with separate horizontal bar column for each trade or operation. Identify each column by distinct delineation. Identify the first work day of each week. Allow space for updating. Identify each part separately unless all work is concurrent.

#### C. Content of Schedule:

Provide complete sequence of construction by activity.  
Shop drawings, project data and samples;  
- Submittal date and date review copies required.

Decision dates;

- Product Substitutions
- Selection of finishes.

Product procurement and delivery dates;

Dates for beginning and completion of each element of construction, including equipment installation dates;  
Testing of equipment on systems.

Show projected percentage of completion for each item of work as of first day of each month. Provide sub-schedules to define critical portions of entire schedule.

#### D. Updating:

- Show all changes occurring since previous submittal of schedule.
- Indicate progress of each activity; show completion dates.
- Include major changes in scope, modified activities, revised projections, and other identifiable changes.
- Provide description of current and anticipated delay factors and their impact.

#### E. Submittals:

- Submit initial schedule within 15 calendar days after date of Notice to Proceed. Agency Representative will review schedule and return review copy within 10 calendar days after receipt.
- If required, resubmit within 7 calendar days after return of review copy.
- Submit periodically updated schedules accurately depicting progress to first day of each month.
- Submit 4 copies to Agency Representative.

#### F. Distribution:

Distribute copies of reviewed schedules to job site file, subcontractors, and other concerned parties, with instructions to coordinate.

**END OF SECTION**

## SECTION 01340 – SHOP DRAWINGS, PROJECT DATA AND SAMPLES

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, apply except as modified herein.

#### A. Submit:

Submit to the Agency shop drawings, project data and samples required by specification sections.

#### B. Related Requirements Specified Elsewhere:

- General Conditions
- Construction Schedules: Section 01310
- Summary of Work: Section 01010
- Project Closeout: Section 01700
- Products and Materials: Section 01600

#### C. Construction Schedule:

Designate dates for submission and dates reviewed shop drawings, project data and samples will be needed for each product.

### II. SHOP DRAWINGS

Original drawings, prepared by Contractor, subcontractor, supplier or distributor which illustrate some portion of the work, showing fabrication, layout, setting or erection details.

Furnished at Contractor's expense by Contractor. Prepared by qualified detailer.

Identify details by reference to sheet and detail numbers on Contract Drawings. Minimum sheet size: 8.5" by 11".

#### A. Reproduction for Submittals:

Reproducible transparency with three opaque diazo prints.

### III. PROJECT DATA

#### A. Manufacturer's Standard Schematic Drawings:

Modify to delete information which does not apply. Supplement standard information where applicable to work.

#### B. Manufacturer's Catalog Sheets, Brochures, Diagrams, Schedules, Performance Charts, Illustrations and other Standard Descriptive Data:

- Clearly mark each copy to identify pertinent information.
- Show dimensions and clearances required.
- Show performance characteristics and capacities.
- Show wiring diagrams and controls.

### IV. SAMPLES

Physical examples to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged.

#### A. Office Samples:

Of size and quantity to clearly illustrate:

Functional characteristics of product or material, with integrally related parts and attachment devices.

Full range of color samples.

After review, samples may be used in construction project.

**B. Field Samples and Mock-Ups:**

Erect at project site at location acceptable to Engineer.

Construct complete, including work of all trades required in finished work.

**V. CONTRACTOR'S RESPONSIBILITIES**

- Review shop drawings, project data and samples prior to submission.
- Verify field measurements, field construction criteria, catalog numbers and similar data.
- Coordinate each submittal with requirements of work and of Contract Documents.

**A. Responsibility for Errors and Omissions in Submittals:**

Not relieved by Landscape Architect's review of submittals.

**B. Responsibility for Deviations in Submittals from Contract Documents:**

Not relieved by Landscape Architect's review unless Landscape Architect gives written acceptance of specific deviations.

Notify Agency in writing at time of submission of deviations in submittals from requirements of Contract Documents.

Begin no work requiring submittals until return of submittals with Landscape Architect's stamp and signature indicating review.

Distribute copies after Landscape Architect's review.

**VI. SUBMISSION REQUIREMENTS**

Schedule all submittals no later than 40 days after Award of Contract.

The Agency will not be responsible for delays to the Contractor for any submittal not received within the specific time.

Contractor's distribution shall be as required, plus three copies for Agency's retention, or number of samples specified in pertinent section.

Transmittal letter shall be in duplicate, containing date, project title and number, Contractor's name and address, the number of each shop drawing, project data and sample submitted, notification of deviations from Contract Documents, and other pertinent data.

Submittal shall include:

- Date and revision date;
- Project title, number, park name or names.
- Names of: Agency, Contractor, Subcontractor, Supplier, Manufacturer, separate detailer, where pertinent;
- Identification of material;
- Relation to adjacent structure or materials;
- Field dimensions, clearly identified; Specification section number;
- Applicable standard, such as ASTM # or Federal Specification;
- Space for Landscape Architect's stamp;
- Identification of deviations from Contract Documents;
- Contractor's stamp, initialed or signed, certifying review of submittal, verification of field measurements and compliance with Contract Documents.

**VII. RESUBMISSION**

**A. Shop Drawings:**

Revise initial drawings as required and resubmit as specified for initial submittal.

Indicate on drawings any changes which have been made other than those requested by Landscape Architect.



**B. Project Data and Samples:**

Submit new datum and samples as required for initial submittal.

**VIII. DISTRIBUTION AFTER REVIEW**

Distribute stamped copies of shop drawings and project data to:

- Contractor's file
- Job site file
- Record Documents file
- Subcontractor
- Supplier
- Fabricator.

**A. Samples:**

Distribute as directed.

**END OF SECTION**

## SECTION 01420 – INSPECTION OF WORK

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, apply except as modified herein.

#### A. Inspection:

The Agency will inspect and approve all installations and operations. All submittals to, and communication between, the Agency and the Contractor related to the work of this Contract shall be directed to the Agency Representative.

#### B. Notice:

The Contractor shall give the Agency Representative or an authorized representative a twenty-four (24) hour notice prior to work inspections required elsewhere in these specifications or by public agencies.

The work shall be ready for inspection at the scheduled times arranged by the Contractor. If, in the Agency Representative's sole judgment, the work is not ready and the inspection must be rescheduled, the Contractor shall be notified, shall reschedule the inspection, and shall provide twenty-four (24) hours notice of the rescheduled inspection.

In order to allow for inspection, and in addition to any inspection required by the City Building and/or Safety Department or any inspection required elsewhere in these specifications, the Contractor shall notify the responsible agency sufficiently in advance of the permanent concealment of any materials or work.

If any work is concealed or performed without the prior notice specified above, then the work shall be subject to such tests or exposure as may be necessary to prove to the Agency Representative or responsible agency that the materials used and the work done are in conformity with the plans and specifications. All labor and equipment necessary for exposing and testing shall be furnished by the Contractor at his expense. The Contractor shall replace, at his own expense, any materials or work damaged by exposure or testing.

Any inspection or approval by any representative or agent of the Agency will not relieve the Contractor of the responsibility of incorporating in the work only those materials which conform to the specifications, and any non-conforming materials shall be removed from the project site whenever identified.

#### C. Final Inspection:

Upon the completion of the work, the Contractor shall notify the Agency Representative seven (7) days in advance of when he desires a final inspection of the work. Engineer will make such inspection as soon thereafter as possible.

#### D. Defective Work:

No work which is defective in its construction or deficient in any of the requirements of the specifications shall be considered as accepted. The Contractor shall correct any imperfect work whenever discovered, before the final acceptance of the work.

#### E. Inspection Overtime:

The Contractor shall compensate the Agency, either upon receipt of a bill therefor or by deduction from the final amount due the Contractor, for all hours worked by the Inspector or other authorized Agency employees on Saturdays, Sundays, or legal holidays at one and one-half (1/2) times the employees basic rate of pay, plus current rate for overhead.

**END OF SECTION**

**SECTION 01500 – TEMPORARY FACILITIES AND CONTROLS**

**I. GENERAL**

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, apply except as modified herein.

The Contractor shall be responsible for all specific safety requirements promulgated by any governmental authority, including the requirements of the Occupational Safety and Health Act of 1970 (OSHA) and CAL OSHA.

**II. ACCESS AND FACILITIES**

**A. Access:**

Provide and maintain an adequate access to the site of the project. Also provide temporary roads if any are required for prosecution of the work.

**B. Temporary Fencing:**

Contractor shall erect a temporary chain link fence around the entire perimeter of the construction area for his own security. Location and limits of fencing shall be approved by Agency and Architect at initial site meeting. Fence shall be a minimum 6'-0" in height and shall have appropriate access gates. Fence shall have a good appearance. At completion of project (or sooner), Contractor shall remove fence from property with Agency permission.

**C. Storage Sheds:**

Provide and maintain on the premises, where directed, watertight storage sheds for all materials which might be damaged by weather, including storage facilities for concrete test samples or other material samples required for the work.

**D. Sanitary Facilities:**

The Contractor shall provide temporary toilet facilities which may consist of portable chemical toilets. Number of toilets shall be based on number of workers - 1 per 15 workers.

Toilet facilities shall be kept supplied with toilet paper and be kept in a clean and sanitary condition until completion of the work and then be removed from the work site. Upon removal, that portion of the site shall be properly cleaned and graded.

**III. TEMPORARY SIGNBOARDS**

**A. Identification Sign:**

If so required by Agency, provide and maintain an identification sign in a prominent location approved by the Agency Representative, as directed.

Sign shall be constructed by a professional sign painter.

Sign colors shall be as selected by the Landscape Architect. Paints shall be exterior grade to maintain high quality appearance throughout construction period.

Contractor shall be responsible for layout of sign subject to approval of the Agency Representative. Sign shall contain the following:

(PROJECT NAME, CLIENT)  
COUNCIL MEMBERS' NAMES  
UNDER CONSTRUCTION.  
SCHEDULED OPENING DATE \_\_\_\_\_  
MIG, LANDSCAPE ARCHITECT  
\_\_\_\_\_, GENERAL CONTRACTORS

**IV. FIRE PROTECTION**

Provide general temporary fire protection for the work under this contract.

**V. TRASH REMOVAL AND CLEANING**

Provide trash receptacles for collecting debris. Remove debris from job site at regular intervals.

**END OF SECTION**

## SECTION 01600 – PRODUCTS AND MATERIALS

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, apply except as modified herein.

#### A. Work Included:

- Transportation and storage.
- Products list.
- "Or equal" and reference to trade names.
- Contractor's options.
- Substitutions.

#### B. Related Requirements Specified Elsewhere:

- Schedule of Values: Section 01700.
- Shop Drawings, Project Data and Samples: Section 01340.
- Testing: Section 01410.
- Inspection: Section 01420.

### II. HANDLING

#### A. Transportation and Storage:

Products or materials to be incorporated in the work shall be transported, handled, and stored in such a manner as to assure the preservation of their quality and fitness for the work and to facilitate inspection.

### III. PRODUCTS LIST

Within 40 days after date of Contract, submit to Engineer five (5) copies of complete list of all products which are proposed for installation.

Tabulate list by each specification section. For products specified under reference standards, include with listing of each product:

- Name and address of manufacturer;
- Trade name;
- Model or catalog designation;
- Manufacturer's data:
  - o Performance and test data
  - o Reference standards

### IV. "OR EQUAL" AND REFERENCE TO TRADE NAMES

Whenever in the specifications any material or process is indicated or specified by patent or proprietary name or by name of manufacturer, such specifications shall be deemed to be used for the purpose of facilitating description of the material or process desired and shall be deemed to be followed by the words "or equivalent". However, if the material, process, or article offered by the Contractor is not, in the opinion of the Engineer, equal to that specified, then the Contractor must furnish the material, process or article specified, or one which in the opinion of the Agency Representative is the equal thereof in all essential characteristics.

If the Agency Representative shall decide to accept for use in the project a material which is not the equal of that specified, authority for the substitution shall be made in the manner described for "Extra Work and Changes", with appropriate monetary allowance for the difference in value.

### V. CONTRACTOR'S OPTIONS

For products specified only by reference standards, select any product meeting standards, by any manufacturer.

For products specified by naming several products or manufacturers, select any product and manufacturer named.

For products specified by naming one or more products but indicating the option of selecting equivalent products by stating "or

equal" after specified product, Contractor must submit request, as required for substitution, for any product not specifically named.

## **VI. SUBSTITUTIONS**

### **A. General:**

The Contractor may offer any material or process which he believes to be equal in all essential characteristics to that so indicated or specified; and it shall be incumbent upon the Contractor to furnish sufficient evidence to the Agency Representative to support his claim of equality. Said offer and supporting evidence must be submitted to the Agency Representative within 40 days after the Award of Contract or Contractor will be deemed to have waived his right to offer substitute materials and processes.

### **B. Submittal:**

Submit five (5) copies of request for substitution. Include in request:

- Complete data substantiating compliance of proposed substitution with Contract Documents.
- For products:
  - o Product identification, including manufacturer's name and address.
- Manufacturer's literature:
  - o Product description
  - o Performance and test data
  - o Reference standards
  - o Samples.
- Name and address of similar projects on which product was used, and date of installation.
- For construction methods:
  - o Detailed description of proposed method.
  - o Drawings illustrating methods.
- Itemized comparison of proposed substitution with product or method specified. Data relating to changes in construction schedule.
- Relation to separate contracts.
- Accurate cost data on proposed substitution in comparison with product or method specified.

### **C. Contractor Warrants:**

It has personally investigated proposed product or method, and determined that it is equal or superior in all respects to that specified.

It will provide the same guarantee for substitution as for product or method specified.

It will coordinate installation of accepted substitution into work, making such changes as may be required for work to be complete in all respects.

It waives all claims for additional costs related to substitution which consequently becomes apparent. Cost data is complete and includes all related costs under its contract, but excludes:

- Costs under separate contracts.
- Landscape Architect's re-design.

### **D. Limitations:**

Substitutions will not be considered if:

- They are indicated or implied on shop drawings or project data submittals without formal request submitted within 40 days of award;
- 
- Acceptance will require substantial revision of Contract Documents.

Delays in delivery of specified materials will not be considered justification for substitutions.

**END OF SECTION**

**SECTION 01700 – PROJECT CLOSEOUT**

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, apply except as modified herein.

**A. NOTICE**

At least seven (7) working days notice shall be required for final inspection; such notices shall be given to the Agency Representative.

**B. REMOVAL OF PLANT AND CLEAN-UP**

Upon completion of the work, the Contractor shall remove all its plant, tools, materials, and other articles from the property of the Agency. Should it fail to take prompt action to this end, the Agency, at its option and without waiver of such other rights as it may have, may on seven (7) days' notice treat them as abandoned property. The Contractor shall also sweep all floors broom clean, clean all exterior work and windows and remove all rubbish from the property of the Agency.

**C. DAMAGE**

Damage to existing utilities, trees, pavements or other property caused by the Contractor shall be restored to original condition at the Contractor's expense, prior to final inspection.

**D. GUARANTEES**

All guarantees required by the following Divisions of these Specifications shall be presented in writing to the Agency prior to final acceptance of the work and shall be in addition to the requirements set forth in the Special Provisions of these Specifications.

**E. RECORD DOCUMENTS**

Submit to the Agency prior to final acceptance all record documents required by the other Divisions of these Contract Documents.

**END OF SECTION**

## SECTION 01720 – PROJECT RECORD DOCUMENTS

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, apply except as modified herein.

#### A. Related Requirements Specified Elsewhere:

- Project Meetings: Section 01200.
- Construction Schedules: Section 01310.
- Shop Drawings, Project Data, and Samples: Section 01340.
- Products and Materials: Section 01600.
- Project Closeout: Section 01700.

### B. MAINTENANCE OF DOCUMENTS

Maintain at job site, one copy of:

- Contract Drawings;
- Specifications;
- Addenda;
- Reviewed Shop Drawings;
- Change Orders;
- Other Modifications to Contract;
- Field Test Records;
- Construction Schedules;
- "As-Built" Drawings.

#### A. Storage:

Maintain documents in clean, dry, legible condition.

#### B. Use and Availability:

Not for construction purposes.  
Available at all times for inspection by Engineer.

### C. RECORDING

#### A. General:

- Provide red ballpoint pen for all marking.
- Label each document "PROJECT RECORD" in large, printed letters.
- Keep record documents current.
- Do not permanently conceal any work until required information has been recorded.
- These drawings shall be up-to-date and so certified by the Project Inspector at each progress payment request submittal.

#### B. Marking:

- Contract Drawings. Legibly mark to record actual construction:
- Depths of various elements of foundation in relation to finish floor elevation;
- Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements;
- Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure;
- Field changes of dimension and detail;
- Changes made by Change Order or Field Order;
- Details not on original contract drawings.
- Specifications and Addenda. Legibly mark up each section to record:
- Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed;
- Changes made by Change Order or Field Order;



- Other matters not originally specified.
- Shop Drawings. Maintain as record documents; legibly annotate drawings to record changes made after review.
- "As-Built" Drawings. Agency will furnish the Contractor with one set of ozalid transparencies and one set of blue line prints showing all work required for the use of the Contractor as "as-built" drawings. The Contractor shall clearly mark on each set as specified above.

**D. SUBMITTAL**

At completion of project, deliver record documents to Engineer. Accompany submittal with transmittal letter, in duplicate, containing:

- Date;
- Project title and number;
- Contractor's name and address;
- Title and number of each record document;
- Certification that each document as submitted is complete and accurate;
- Signature of Contractor or its authorized representative.

NOTE: Prior to final payment, Contractor shall submit all Record Documents for review, correct all deficiencies, obtain required approvals, and deliver all approved Record Documents to the Engineer.

**END OF SECTION**

## SECTION 02100 – SITE PREPARATION

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction, Section 300, latest Edition, apply except as modified herein.

#### A. Scope:

- Protection of all improvements to remain.
- Protection of all light poles, fire hydrants, and other utilities to remain.
- Protection of trees indicated on drawings to remain.
- Clearing and grubbing of the site of work as noted on drawings.
- Removal and disposal of all deleterious materials.
- Furnishing, developing, applying and providing watering equipment as required for the project.
- Demolition and removal from the site of all materials, as shown on the drawings and as required for the new work, including the following:
  1. All structures, appurtenances, ball backstops, footings and improvements. All fencing, as noted, with footings.
  2. All concrete, concrete bumpers and asphalt paving, curbs, and all play equipment with footings, etc., as shown and/or as needed for grading operations and other improvements.
- Removal and disposal of any additional items not specifically mentioned herein which may be found within the work limits.
- Electrical removals.
- Special handling and disposal of any toxic wastes (including asbestos).

#### B. Related Work Specified Elsewhere:

- Earthwork and grading: Section 02200.
- Landscape work: Section 02900.
- Electrical work: Section 16010.
- Irrigation systems: Section 02810.

#### C. Acceptance of Site:

Contractor shall accept the site and the character of the work as they exist on the first day of work under this contract. All existing conditions are not necessarily shown on the drawings or noted herein and can be determined only by actual examination of the sites and adjoining premises by the Contractor.

#### D. Responsibility and Coordination:

Contractor shall secure and maintain all required permits and licenses, and pay all fees necessary to legally complete the work of this section.

Contractor shall notify utility companies for all utilities to be cut off, modified or relocated, and shall maintain and protect all active utilities.

#### E. Protection and Safety:

Conform to all requirements of CAL OSHA "Construction Safety Orders" of the State of California Division of Industrial Safety, and applicable ordinances of the **County of Tulare and City of Lindsay**.

Contractor shall provide signs in necessary places to exclude persons, except those connected with the work, from entering the working area. Contractor is responsible for preventing unauthorized persons from entering work area.

Protect the project site and adjacent properties from dirty water, mud and water accumulated due to Contractor's operations, rainfall runoff or water that enters the project site from any other source.

#### F. Salvage Materials:

All salvage material remaining on the site after official notification of vacation by the Agency shall be property of the Contractor, except as noted on the plans and herein.

## II. EXECUTION

### A. General Removal Work:

Demolition and removal work shall be carefully performed to avoid damage to existing facilities as indicated on the plans to remain.

All removal work (except as noted) shall be disposed of off-site, in legal manner, at Contractor's expense.

### B. Site Clearance and Disposal:

Clear the site to be improved of grass, weed growth, rubbish, debris, pavement, concrete, inactive or abandoned facilities (verified by the Agency), etc., that are to be removed for construction of improvements to the limits and depths shown on the plans.

Abandoned underground facilities (verified by the Agency), roots three inches in diameter, rocks and broken masonry larger than four inches in any dimension shall be removed to a minimum depth of 12" below finish grade.

Miscellaneous inactive or abandoned underground facilities located 12 inches or more below finish grade may be removed with Agency approval.

Miscellaneous active lines within 12 inches of finish grade that are uncovered during the grading operations shall be protected.

All deleterious materials within the limits of the work shall be disposed of off the site by the Contractor, who shall make all necessary arrangements and pay all related costs.

### C. Utilities:

Active utilities shall be protected by and at expense of the Contractor. Keep any required utility in operating condition during entire period of work, including irrigation system for landscape maintenance.

Inactive or abandoned utilities shall be disconnected, removed, and plugged or capped subject to the local governing ordinances.

Should the Contractor encounter any existing underground utilities not shown on the drawings, he shall at once notify the Agency Representative who will determine further procedure.

### D. Debris Burning:

Burning of debris will not be permitted except by written permission of the Air Pollution Control Authorities and governing fire authorities.

### E. Sawcut Paving:

The Contractor shall carefully saw cut existing concrete or A.C. paving in the location shown on the drawings and shall carefully remove the designated portion without damage to facilities to remain.

### F. Special Handling and Disposal of Any Toxic Wastes:

Existing improvements are to be demolished on the project. It is the responsibility of the Bidders to ascertain for themselves (by thorough site inspection) the presence of any toxic materials (including any products containing asbestos). They shall make proper allowances in their Bid Proposals to cover all contingencies (as required by public agencies) including health hazard in handling and required and proper disposal off site.

### G. Turf Eradication:

Existing turf shall be killed with a City approved contact/systemic herbicide (Roundup or equal) applied by a certified applicator. After the treatment has been confirmed effective by the Agency representative, the dead material shall be removed from the site and properly disposed by the Contractor. The subsurface dead material shall be processed with grading and soil preparation operations.

**END OF SECTION**

## **SECTION 02160 – EXCAVATION SUPPORT SYSTEMS**

### **I. GENERAL**

The provisions of Standard Specifications for Public Works Construction, latest Edition, Section 306 apply, except as modified herein.

The Contractor's attention is directed to the provisions of Section 6424 of the Labor Code concerning trench excavation safety plans.

### **II. SAFETY PLANS**

#### **A. Requirements:**

Excavation for any trench five feet or more in depth shall not begin until the Contractor has received approval from the Division of Industrial Safety and Agency Representative of the Contractor's detailed plan for worker protection from the hazards of caving ground during the excavation of such trench.

#### **B. Submittal:**

Such plans shall be submitted at least five (5) days before the Contractor intends to begin excavation for the trench and shall show the details of the design of shoring, bracing, sloping or other provisions to be made for worker protection during such excavation.

#### **C. Standards:**

No such plan shall allow the use of shoring, sloping, or a protective system less effective than that required by the Construction Safety Orders of the Division of Industrial Safety. If such plan varies from the shoring system standards established by the Construction Safety Orders, the plan shall be prepared and signed by an engineer who is registered as a Civil or Structural Engineer in the State of California.

**END OF SECTION**

## SECTION 02200 – EARTHWORK AND GRADING

### I. GENERAL

The provisions of Standard Specifications for Public Works Construction, latest Edition, Sections 300 and 301, apply except as modified herein. The "Geotechnical Engineering Report" prepared by **BSK dated October 25, 2021** is bound in these specifications at the end of this section and is hereby made a part of same. All recommendations and requirements shall be carefully followed. (Also called "Soils Report.")

#### A. Scope of Work:

- Geotechnical Engineering Report
- Rough grading as shown on the plans, including overexcavation, imported fill, placement and compaction
- Finish grading of the site.
- Excavation and backfill for all footings, structures, walls, etc. and compaction. Stockpiling and placing topsoil.
- Soil compaction as required.
- Soil testing as required.
- Protective measures.
- Dust and noise abatement.
- Engineered fill under structures.
- Obtaining construction water.
- Adjustment of Manhole Frame and cover sets to grade.
- Blasting.

#### B. Related Work Specified Elsewhere:

- Removal and Demolition Work: Section 02100.
- Trenching, excavation and backfill for any Mechanical, Plumbing, Drainage, or Electrical (pertinent utility sections).
- Surveying (Special Conditions)
- Aggregate Base for A.C. Paving: Section 02510.
- Landscape Planting: Section 02900.
- Soil Treatment: Section 02280.
- Granular Surfacing: Section 02547.

#### C. Testing:

The Soils Engineer selected by the Agency shall be present at the site during the earthwork activities relating to stripping, excavation, backfill and compaction, and filling of the site. Contractor shall give a minimum of 48 hours notice to Soils Engineer before commencing grading operations.

The Soils Engineer shall submit a compaction report to the Agency certifying the Contractor's compliance with the plans, specifications, soils reports, and grading ordinance in placing all fills and backfills. The Soils Engineer shall conduct all specified tests to insure compliance. Soils Engineer shall also test, identify and make recommendations on other site and imported fill materials as specified in this section.

Number and location of soils tests to be at the discretion of the Soils Engineer to assure uniformity and compliance with the grading ordinance.

The cost of services of the Soils Engineer, specified field density and maximum density tests, compaction reports and certificates of compliance, shall be borne by the Agency. All costs for retesting made necessary by failure of contractor to meet grading requirements shall be borne by Contractor.

#### D. Water:

Contractor shall make arrangements with the City to obtain construction water.

### II. MATERIALS

#### A. Aggregate Base:

Crushed aggregate base shall consist entirely of crushed rock and rock dust conforming to the requirements of Section 200-2.2

for 3/4 inch crushed aggregate, of the Standard Specifications. Percentage of wear and grading shall conform to Sections 200-2.2.1 and 200-2.2.2 of the Standard Specifications. Maximum size aggregate shall be 3/4 inch.

### **III. EXECUTION**

#### **A. Topsoil:**

The best on-site topsoil throughout the project area shall be removed to a depth of six inches from all construction areas. The stripped material shall be stockpiled in such locations as may be available at or near projected grades and protected from erosion. Topsoil shall be the best on-site soil with all rocks one inch (1") and larger removed.

Topsoil shall be a minimum of six inches (6") depth in all turf areas, unless otherwise specified.

No topsoil placement is required on non-turf slopes or planting areas unless noted otherwise.

Should the Contractor choose to import topsoil from off-site (Class A topsoil), as an alternative to that specified, all import of material and export of excess soil created by importing top soil shall be accomplished at no additional cost to the Agency.

#### **B. Topsoil Placement:**

Areas to receive topsoil shall be ripped twelve inches (12") deep and surface rock one inch (1") and larger removed before placing topsoil.

#### **C. Rough Grading:**

The site shall be graded to the limit lines and elevations shown on the drawings with such allowances as may be required for the construction of walks, and other intended site improvements. Tolerance for rough grading is 1/10th of a foot, plus or minus, at building pads and paved areas. At all other areas, functional use and appearance shall be the governing factors as determined by the Landscape Architect.

#### **D. Unsuitable Materials:**

Unsuitable soils, large rocks or boulders, broken concrete/asphalt and other deleterious material may be buried on site if the location, depth and method of burial is approved by the Soils Engineer. Only material that can not be accepted for on-site disposal shall be removed from the site by the Contractor. This removal shall be considered Unclassified Excavation and payment will be processed in accordance with the SSPWC.

#### **E. Fill:**

Fill shall be placed in level layers not to exceed six inches in depth and mechanically compacted using optimum amount of moisture to achieve a 90% minimum degree of compaction.

#### **F. Excavation:**

The Contractor shall make all necessary excavation for footings and slabs and do any additional excavation necessary to provide ample room for installation of concrete forms where required.

Footings may be poured in trenches against undisturbed soil where approved by Soils Engineer.

Bottom of excavations shall be level, free from loose material and brought to the indicated or required levels in undisturbed earth. All excavations shall be kept free from standing water. The Contractor shall do all pumping or draining that may be necessary in carrying on the work.

Should excavations for footings, through error, be excavated to a greater depth than indicated or required, such additional depth shall be filled with concrete, as specified for footings, at the Contractor's expense. Excavations that have been dug wider than required, shall be formed to conform with plans and specifications. Filling with concrete can only be accepted with the approval of the Agency Representative.

Any excess soil generated from excavation for footings, AC and base, and concrete flatwork shall be disposed of offsite by the contractor at no additional cost to the Agency.

**G. Finish Grading:**

Finish grades shall slope to drain without water pockets or irregularities and shall conform to the intent of all plans and sections - after thorough settlement and compaction of the soil. Finish grades shall meet all existing or established controls of sidewalks, curbs and walls and shall be of uniform slope and grade between points of fixed elevations or elevation controls and from such points to established grades. Tolerance for finish grading is 1/10 foot, plus or minus, adjacent to fixed elevations or gradients. At all other areas, functional use and appearance shall be the governing factor.

**H. Backfilling:**

After the foundations and walls have been placed, forms removed, and concrete or masonry work approved, the excavation shall be backfilled with earth to the required grade.

Select site material shall be used for backfill and shall be free from large stones and clods. Material shall be approved by the Soils Engineer.

Backfill shall be deposited in layers of 6" thickness.

Layers of backfill shall be moistened with water, the amount to be rigidly controlled to insure optimum moisture conditions for the type of fill material used. Excess water causing saturated earth beneath footings will not be permitted.

Backfill shall be compacted by suitable means to 90% density.

All trenches for other work shall be backfilled in accordance with this section, and may be tested at the discretion of the Soils Engineer.

**I. Protective Measures:**

All excavations shall be protected and guarded against danger of life, limb and property.

Existing improvements and trees within contract limits or areas of activity shall be properly protected.

**J. Dust and Noise Abatement:**

During the entire period of construction, site areas shall be kept sprinkled.

**IV. QUALITY CONTROL**

**A. Conflicts:**

In the event of conflict between the requirements of this Specification Section, the Standard Specifications, and the Soil and Foundation Investigation Report, the document highest in precedence shall control. The precedence shall be:

1. Geotechnical Engineering Report.
2. Specification Section 02200
3. Standard Specifications for Public Works Construction (SSPWC).

**B. Trenching:**

Trenching for site electrical, water service and irrigation mains and laterals shall not commence until rough grading for the entire site has been substantially completed and confirmed with Agency Representative (also see pertinent utility sections).

**END OF SECTION**

## SECTION 02280 – SOIL TREATMENT

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, apply except as modified herein.

#### A. Scope:

All areas to be surfaced with asphaltic concrete, decomposed granite, and brick dust shall be treated.

#### B. Related Work Specified Elsewhere:

Earthwork - Section 02200.

A.C. Paving - Section 02510.

Decomposed Granite - Section 02547.

Infield Surface - Section 02547.

### II. MATERIALS

#### A. Product and Application Rate:

Oust XP (75% Sulfometuron-Methyl) (50% Active Dichlobenil) or equally effective physiologic-phytopathic equivalent chemical. Oust XP available through Target Specialty Products, phone number 562-802-2238.

Per manufacturers specifications.

### III. EXECUTION

#### A. General:

Notify Agency Representative two days prior to application of chemical.

#### B. Equipment:

All solution mixed applications shall be applied with a paddle agitator spray rig.

#### C. Treatment:

Apply after the subgrade has been completed and just prior to placing the aggregate base course. The time lapse between soil treatment and placing of cover shall be the practicable minimum. After the chemical treatment has been made, the area shall be thoroughly sprinkled so as to distribute the chemical through the first two or three inches of the subgrade.

#### D. Protection:

The Contractor shall provide all necessary protection to prevent injury to animal or adjacent plant life and property occasioned by the application of the soil sterilant. The Contractor will be held responsible for all personal injury or property damage caused by the application of soil sterilants or the storage of the same.

**END OF SECTION**



## SECTION 02319 – BASE COURSE

### I. GENERAL

Application and construction procedures shall conform to the requirements of the Standard Specifications for Public Works Construction (SSPWC) and any supplements.

### II. SUMMARY

Provisions of the General and Supplementary Conditions and Division 01 apply to this section.

#### A. Section Includes:

- Installation of base material.

#### B. Related Sections:

- Section 02201: Clearing and Grubbing.
- Section 321216: Asphalt Concrete Paving
- Section 02770: Site Concrete Work.

### III. SUBMITTALS

#### A. Product Data:

- Submit technical information and test data for base materials.

#### B. Sample:

- Submit Sample of proposed base course material.

### IV. QUALITY ASSURANCE

Comply with the following as a minimum requirement: Standard Specifications for Public Works Construction, current edition.

### V. PRODUCTS

#### A. BASE MATERIALS

The following base materials are classified, in order of preference, in conformance with the requirements of Standard Specifications for Public Works Construction: Section 200-2, "Untreated Base Materials".

- Crushed aggregate base.
- Crushed miscellaneous base (fine gradation).

### VI. MATERIAL APPROVAL

Base material shall be reviewed by the Owner's Consultant before installation.

### VII. EXECUTION

#### A. Installation

Scarify existing subgrade material to a depth of 6-inches, add water and moisture condition subgrade soil to 3% above optimum moisture content and recompact subgrade soil to 90% relative compaction.

Install base course material in layers not exceeding 4 inches in thickness, unless required otherwise. Grade and compact to indicated levels or grades, cut and fill, water and roll until the surface is hard and true to line, grade and required section. Provide a relative compaction of at least 95 percent, unless otherwise required.

Grade base course to elevations indicated on Drawings, ready to receive surfacing.

#### B. Protection

Protect the Work of this section until Substantial Completion.

**C. Cleanup**

Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

**END OF SECTION**

## SECTION 02510 – A.C. PAVING

### I. GENERAL

#### A. Related Documents:

Standard Specifications for Public Works Construction (SSPWC), latest Edition, apply except as modified herein:

#### B. Work Included:

- Protective measures.
- Asphaltic concrete surfacing.
- All parking stall painting, located as per drawings.
- Precast concrete wheel stops.
- Sealcoat.

#### C. Related Work Specified Elsewhere:

- Concrete: Cement Finish, Section 03300.
- Removal and demolition work: Section 02100.
- Earthwork and grading: Section 02200.
- Soil sterilization: Section 02280.
- Drainage: Section 02720.

### II. MATERIALS

#### A. Asphalt Concrete Pavement

Asphalt concrete materials shall be Class C2 AR 4000, in conformance with Section 203-6 of the Standard Specifications. The finish course of A.C. pavement shall be Class "C2"; however, underlying courses may be Class "B" or Class "C1".

Asphalt concrete pavement shall be constructed in accordance with Section 302-5 of the Standard Specifications to the limits and grades shown on the construction plans and as specified by the Soils Report. The maximum thickness of any A.C. paving course shall not exceed 22".

#### B. Aggregate Base:

Shall be "Crushed Aggregate Base," Section 200-2.2 of Standard Specifications.

#### C. Liquid Asphalt:

A tack coat shall be applied to all asphalt concrete and P.C.C. concrete surfaces to be joined by new A.C. pavement.

Liquid asphalt used for tack coat shall be Grade SS-1h Emulsified Asphalt in conformance with Subsection 203-3 of the Standard Specifications.

The rate of application of the tack coat shall be as designated in Subsection 302-5.3 of the Standard Specifications.

#### D. Sealcoat:

Shall be "Sealcoat - Asphalt-Based", Section 203-9 of Standard Specifications.

#### E. Traffic Paint:

Paint shall be specifically manufactured for traffic line markings and shall conform to Section 210-1.6.3 of the Standard Specifications.

#### F. Precast Concrete Wheel Stops:

Precast concrete wheel stops shall be manufactured products of 3,800 concrete with adequate reinforcing steel and as detailed on drawings. Finish shall be smooth, with no holes, honeycombs, blemishes, etc. Stops shall be formed in true, straight lines and shall be accurately aligned.

### **III. EXECUTION**

#### **A. General:**

Thickness of aggregate base course and for asphaltic concrete surfacing after compaction shall be as noted on the drawings.

Aggregate base shall be compacted to a minimum of 95% of maximum density as per Soils Report. Installation of base and surfacing shall be as per Standard Specifications.

Any sawcutting of pavement shall be marked and approved by Agency Representative prior to sawcutting.

#### **B. Sealcoat:**

Sealcoat application shall be in accordance with Section 302-8 "Sealcoat for Miscellaneous Areas." Sealcoat shall be applied over all new A.C. paving unless noted otherwise.

#### **C. Painting:**

All traffic painting on paved surfaces, including stall markings, striping, etc., shall be painted where noted on the plans. Machine apply in strict accordance with manufacturer's directions. A minimum of two coats shall be applied to achieve the desired opacity. Engineer shall be sole judge of opacity, and his judgment shall be final. Evenly distribute parking stalls throughout delineated parking bay. Minimum stall shall be 9'-0". Stripe handicap stalls per governing agency standards or as detailed.

Any existing striping that is in conflict with new striping shall be removed by contractor as part of the striping work to the satisfaction of the Agency Representative.

#### **D. Tests:**

All required tests shall conform to the requirements of the Standard Specifications.

#### **E. Project Meeting:**

Prior to commencement of any pavement operations, the Contractor and paving subcontractors shall attend a pre-pavement meeting as directed by the Agency Representative.

**END OF SECTION**

## SECTION 02535 – PLAYGROUND SURFACING

### I. GENERAL

#### A. Scope of Work:

Observation of placing, finishing, curing as necessary playground surfacing. Preparation of subsurface.

#### B. Related Work Specified Elsewhere:

Earthwork & Grading: Section 02200. Play Equipment:  
Section 02860.  
Drainage: Section 02720.  
Soil Treatment: Section 02280.

### II. MATERIALS

#### A. Full Access Play Area Surfacing:

Product: As shown on drawings or approved equal. Poured in place safety surface for use under playground equipment; "Safeguard surfacing" available through Pacific Design Concepts (714) 846-4885, or approved equal.

Description: A dual durometer poured-in-place system with a wearing layer upper membrane and an underlying impact attenuation cushion layer. The finished surface shall be porous and capable of being installed at varying thickness to comply with Critical Fall Height requirements of playground equipment installed in conjunction with the surface.

Material Composition: The surface shall be manufactured from EPDM and SBR rubber compounds mixed with 100% MDI based Polyurethane Resin. Polyurethane containing any TDI shall not be allowed due to environmental regulations.

Cushion Course: Shall be a mixture of shredded and a 1-4 mm SBR rubber particles of heterogeneous distribution bonded by a polyurethane binder applied to 100% of the granules and installed to a designated thickness as required by the Consumer Product Safety Commission's Guidelines and ASTM 1292 Test Criteria.

Wearing Surface: Shall be a mixture of black EPDM and colored EPDM 1-4 mm granules bonded by a polyurethane binder applied to 100% of the granules and applied to a minimum thickness of 3/8" over the cushion layer. Color choice and blend ratios as indicated in the drawings.

Finish Texture: Shall be pebble grain.

Subbase: Sub base shall be as indicated in the drawings.

or

Product: As shown on drawings or approved equal. Poured in place safety surface for use under playground equipment; manufactured by Pro-Tect Turf Inc available through T.J. Janca Construction Tel # 714-921-3940, or approved equal.

Description: A two layer system. The first layer is a shock pad consisting of 100% California recycled raw shredded rubber buffings. The buffings are bound by aromatic urethane and troweled into place. Thickness of the shock pad is based on ASTM F1292-99, "Standard Specifications for Impact Attenuation of Surface Systems Under and Around Playground Equipment." The second layer wear course is applied over the shock pad and consists of EPDM colored rubber granules.

Material Composition: The surface shall be manufactured from EPDM and SBR rubber compounds mixed with 100% MDI based Polyurethane Resin. Polyurethane containing any TDI shall not be allowed due to environmental regulations.

Cushion Course: Shall be a mixture of shredded and a 1-4 mm SBR rubber particles of heterogeneous distribution bonded by a polyurethane binder applied to 100% of the granules and installed to a designated thickness as required by the Consumer Product Safety Commission's Guidelines and ASTM 1292 Test Criteria.

Wearing Surface: Shall be a mixture of black EPDM and colored EPDM 1-4 mm granules bonded by a polyurethane binder applied to 100% of the granules and applied to a minimum thickness of 3/8" over the cushion layer. Color choice and blend ratios as indicated in the drawings.

Finish Texture: Shall be pebble grain.

Sub Base: Sub base shall be as indicated in the drawings.

All material shall meet or exceed guidelines set by Consumer Product Safety Commission and National Bureau of Standards including: Class 1 fire rating; ASTM F 355-78 headform drop test; CPSC NBSIR-79-1707; MIL-STD-45662 notice 3; MIL-I-45208A, amend. 1; 100% memory and 130%

**B. Weed Control Blanket:**

Polypropylene fabric for use in installations over dirt, gravel, sand and other loose particle surfaces.

**C. Color:**

Surface colors shall be as indicated on the plans or selected from manufacturer's samples. The color indicated or selected shall be a 50% blend of the selected color or colors and 50% black. Submit to Landscape Architect within 20 days of Notice to Proceed.

Materials are to be of surfacing manufacturer's system. Note: All materials are to be of one manufacturer's system.

**III. EXECUTION**

**A. Construction Observation and Certification:**

The play surfacing subcontractor shall observe the placing, finishing and curing operations of play area construction. Advise the General Contractor concerning methods and quality of work.

Prior to commencing any of the work of the section, the surfacing Subcontractor shall certify in writing to the General Contractor and to the Agency Representative that the play area is in a condition acceptable for the work of this section.

**B. Preparation of Surfaces:**

Loose aggregate sub-base shall conform to Section 200-2.2, 200-2.2.1 & 200-2.2 for 3/4 inch crushed aggregate, of the Standard Specification for Public Works. Maximum size aggregate shall be 3/4 inch. Aggregate sub-base shall be compacted to 95%.

**C. Surfacing:**

The surfacing manufacturer's written instructions shall be strictly adhered to. The manufacturer's representative shall be present during application of the rubber resilient surfacing.

**D. Finish:**

The top wearing course shall be trowelled to produce an even uniform surface.

**IV. QUALITY CONTROL**

Prior to the start of any work of this section, the Contractor shall arrange a meeting at the job site with the following representation:

- Contractor
- Surfacing Subcontractor
- Consultant
- Agency Representative

**END OF SECTION**

**SECTION 02547 – GRANULAR SURFACING**

**I. GENERAL**

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, apply except as modified herein.

**A. Work Included in this Section:**

- Site layout for ball field
- Site preparation for ball field. Refer to plans.
- Fine finish grading.
- Furnishing and installing decomposed granite.
- Furnishing and installing stabilized decomposed granite.
- Furnishing and installing infield surface.
- Furnishing and installing batter’s box and pitcher’s mound clay.

**B. Work not Included:**

- Site demolition.
- Rough and finish grading. Irrigation.
- Fencing.
- Concrete.
- Play Equipment.

**C. Related Work Specified Elsewhere:**

- Soil Treatment, Section 02280.

**D. Approvals:**

All rough and finish grading shall be inspected and approved before start of any work of this section.

All sprinkler work affecting the work of this section shall be inspected and approved before installation of topping.

**II. MATERIALS**

**A. Decomposed Granite:**

Decomposed granite shall meet the requirements of Standard Specifications for Public Works Construction, Section 400-2.3.1, Disintegrated Granite, except that grading shall be as follows:

<u>Sieve Size</u>	<u>% Passing</u>
3/4"	100
2"	95 - 100
No. 4	50 - 100
No. 30	25 - 55
No. 200	5 - 18

**B. Stabilized Decomposed Granite:**

Decomposed granite shall meet the following Sieve Analysis (Cal Trans 202) as follows:

<u>Sieve Size</u>	<u>% Passing</u>
2" (12.5 mm)	100
3/8" (9.5 mm)	97
No. 4 (4.75 mm)	78
No. 8 (2.36 mm)	61
No. 16 (1.18 mm)	46
No. 30	33
No. 50	23
No. 100	15
No. 200	9

The R value shall be a minimum of 70.

The dry static coefficient of friction shall be greater than .60.

Stabilizer® organic binder supplied by Stabilizer Solutions, Inc. (800)336-2468, info@stabilizersolutions.com, shall be incorporated with granite fines by the use of a pug mill that includes a weight belt feeder to insure proper ratio of Stabilizer® to granite fines (12 pounds per ton of granite fines). Blending procedures are performed only by a licensed Stabilized Decomposed Granite blender by Stabilizer Solutions, Inc.

For the trail the stabilized granite shall be placed to a minimum depth of 3" compacted.

Decomposed granite shall be 1/4" Gold as supplied by Stabilizer Solutions, Inc.(800)336-2468, info@stabilizersolutions.com. Stabilized Decomposed Granite with Stabilizer can only be sold through a licensed Stabilizer® dealer.

Prior to installation, samples shall be taken from each 300 tons delivered on site and submitted for Stabilizer® Content Test by Turf Diagnostic & Design, 613 E. 1<sup>st</sup> Linwood, KS 66052.

**C. Stabilized Infield Surface:**

Stabilized infield mix shall be Stabilizer® Ballyard Infield Mix provided by Stabilizer Solutions, Inc.(800)336-2468, info@stabilizersolutions.com. Provide samples for review and approval.

Prior to installation, samples shall be taken from each 100 tons delivered on site and submitted for Stabilizer® Content Test by Turf Diagnostic & Design, 613 E. 1<sup>st</sup> Linwood, KS 66052.

**D. Batter’s Box and Pitcher’s Mound Clay;**

The batter’s box and pitcher’s mound clay shall be constructed of “Hilltopper” waterless mound clay from Stabilizer Solutions, Inc.(800)336-2468, info@stabilizersolutions.com. Provide samples for review and approval.

**E. Warning Track:**

The warning track shall be constructed of stabilized 1/4" Gold Warning Track by Stabilizer Solutions, Inc.(800)336-2468, info@stabilizersolutions.com. Provide samples for review and approval.

**F. Submittals:**

Contractor to furnish conformance tests and obtain approval of material prior to delivery.



### III. EXECUTION

#### A. Sand:

Distribute sand to limits and to depths shown on plans. Finish depth of sand shall be measured after settlement.

#### B. Decomposed Granite:

Subcut to 3 inches below finish grade. Maintain uniform subgrade slope to drain. Treat grade area with a non-translocating, pre-emergent herbicide (see Soil Treatment - Section 02280).

Evenly distribute decomposed granite to bring grades to required level after incorporation and compaction.

Grade to uniform slope. Thoroughly moisten without flooding and compact to minimum 90%.

#### C. Stabilized Decomposed Granite

Base shall be 4" compacted layer of Cal Trans recommended crushed granular road base.

Pre-soak base material with water and compact to 95% prior to installing Stabilized decomposed granite.

Install proper drainage to ensure no standing water on surface or adjacent to stabilized decomposed granite, including downspouts when placed under roof overhang.

Place stabilized decomposed granite on prepared base at a 3" thickness. Level to desired grade and cross section.

Water heavily for full-depth moisture penetration of the stabilized decomposed granite profile. Water activates Stabilizer®. To achieve saturation of Stabilized pathway profile, 25 to 45-gallons of water per 1-ton must be applied. During water application randomly test for depth using a probing device, which reaches full depth.

Compact stabilized decomposed granite to 85%-95% relative compaction by equipment such as; a 2 to 4-ton double drum roller. DO NOT use a vibratory plate compactor or vibration function on roller as vibration separates large aggregate particles. Do not begin compaction for 6 hours after placement and up to 48 hours.

Allow surface to dry completely before permitting heavy traffic.

#### D. Infield Surface:

Infield mix shall be delivered and stockpiled in an area free of rock and other contaminants. Subcut infield area to three inches below finish grade. Remove all rock 2" and larger a minimum of 3" below subgrade by dragging the area. Maintain uniform subgrade slope to drain. Thoroughly moisten the soil without flooding and roll with a minimum 1 ton roller. Prior to placement of three inch (3") deep infield mix, the graded area shall be treated with a non-translocating, pre-emergent herbicide (see Soil Treatment - Section 02280).

Evenly distribute sufficient infield mix to bring grades to required level after incorporation and compaction. Lasergrade to uniform .5% slope towards outfield. Water heavily for full-depth moisture penetration of the stabilized infield mix profile. Water activates Stabilizer®. To achieve saturation of stabilized infield profile, 25 to 45-gallons of water per 1-ton must be applied. During water application randomly test for depth using a probing device, which reaches full depth and roll with minimum 1 ton road roller. Match finish elevations to existing infield edge.

#### E. Maintenance:

Remove all vegetation in infield areas and in decomposed granite areas as it appears. Contractor may use a contact weed killer that does not stain or leave a residue to control vegetation.

**END OF SECTION**

## SECTION 02660 – DOMESTIC WATER SERVICE AND SANITARY SEWER

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, apply except as modified herein.

#### A. Scope:

Furnish and install all site sanitary sewer pipe and domestic water pipe shown on site utility drawings and as follows:

- Domestic water from water meter to P.O.C. five feet (+/-) from building. Sanitary sewer connection to service main.
- Sanitary sewer to P.O.C. five feet (+/-) from building.

#### B. Related Documents:

- Section 15400: Plumbing
- Section 02810: Irrigation

### II. MATERIALS

#### A. Sanitary Sewer Pipe:

- Sanitary sewer pipe 4 inch through 15 inch shall be ASTM D3034, SDR 26.
- Bell and spigot joints
- Fittings: 4 inch through 27 inch: ASTM F1336
- Joint Gasket: Elastomeric seal, ASTM F477
- Special Pipe Coupling: ASTM C1173. Rubber or elastomeric sleeve and band assembly fabricated to match outside diameters of pipes to be joined.

#### B. Domestic Water Pipe:

Plastic pipe for use with solvent weld socket or threaded fittings shall be rigid unplasticized polyvinyl chloride PVC 1220 (Type I, Grade 2), conforming to ASTM D-1785. Plastic pipe marked with product standard PS-21-70 conforms with this requirement.

Plastic pipe for use with rubber ring gaskets shall be rigid unplasticized polyvinyl chloride PVC 1120 (Type I, Grade 1), manufactured in accordance with ASTM D-2241. Plastic pipe marked with product standard PS-22-70 conforms with this requirement.

Plastic pipe and fittings smaller than 2" shall be Schedule 80.

Plastic pipe and fittings 2" and larger shall be Class 315 solvent weld or Class 160 for use with rubber ring gaskets.

#### C. Gravity Pipe Cleanouts:

- Piping: Same as sanitary sewer line if possible
- Top Cap: Threaded and of same material as piping if possible
- Box Size: As required to provide access and allow easy removal and reinstallation of cap
- Box Types:
  - Non-Traffic Areas: Portland cement concrete box and box cover, light duty
  - Traffic Areas: Portland cement concrete box and box cover or steel or cast iron cover, heavy duty, both box and cover to be rated for AASHTO H20 loading
- Box Cover Markings: "SANITARY SEWER" unless otherwise specified

### III. INSTALLATION

#### A. Water Supply Lines:

Install in accordance with the drawings, and Section 306 of the Standard Specifications for Public Works Construction.

#### B. Sanitary Sewer:

All PVC plastic sewer pipe shall be laid in accordance with applicable portions of Sections 306 of the Standard Specifications.

PVC plastic sewer pipe shall be installed of the dimensions and to the lines and grades shown upon the plans. The pipe shall have full bearing upon the bottom of the trench throughout its length with the bottom of the trench recessed to relieve all load from the bell of the pipe.

Carefully handle during loading, hauling, unloading and placing operations to avoid breakage or damage. Use strap type slings for lifting and placing; no chains or hooks will be permitted. Comply with the manufacturer's recommendations.

Before lowering pipe into the trench, remove all stakes, debris, loose rock and other hard materials from the bottom of the trench. Lay accurately in conformance with lines and grades indicated. Start laying the pipeline at the low end and proceed upstream. Lay bell and spigot pipe with the bell end facing upstream. Lay pipe on a bed prepared by handwork, dug true to grade. Furnish firm bearing for pipe throughout its entire length with bell holes provided at the ends of each pipe length of sufficient size to permit making up the particular type of joint being used. Adjust pipe to line and grade by scraping away or filling and tamping material under the body of the pipe for the entire pipe length and not by blocking or wedging. After final positioning, hold pipe in place in trench with backfill material placed equally on both sides of the pipe at as many locations as required to hold the pipe section in place.

When necessary to conform to the alignment specifically indicated, lay pipe on a curved alignment by means of asymmetrical closure of joints or bending of the pipe barrel. Use shorter lengths of pipe than the standard length if necessary to achieve curvature specified. Do not exceed the recommendations of the pipe manufacture for deflections at the joints or pipe bending.

Close open ends of pipes and appurtenance at the end of each day's work or when work is not in progress.

#### C. Maximum Length of Open Trench:

Shall be as per Section 306-1.1.2 of the Standard Specifications.

**END OF SECTION**

## **SECTION 02720 – DRAINAGE**

### **I. GENERAL**

The provisions of the Standard Specifications for Public Works Construction (SSWC) latest edition apply except as modified herein.

#### **A. Scope:**

Furnish and install drain line system as shown on the drawings, including material, labor, equipment and services required for construction of a complete system including, but not limited to, the following:

- Protective measures.
- Drain lines.
- Inlets and connection to existing system.

### **II. MATERIALS**

#### **A. PVC Plastic Storm Drain Pipe:**

- SDR 35 PVC with gasketed joints.
- Shall be Schedule 40 PVC pipe.

#### **B. 12" Catch Basins:**

- Manufactured by NDS as noted on drawings. Grates shall be manganese bronze.

#### **C. 6" Drain:**

- Manufactured by NDS as noted on drawings. 6" drains shall be Round brass with polished finish.

### **III. EXECUTION**

Pipe installation and connections shall be per City Public Works Standards. City Representative to inspect open trench, installation of pipe, connections to existing drain systems and backfill.

Backfill all trenches and compact to 90% relative maximum density as verified by compaction tests for all grades shown on plans.

**END OF SECTION**

## SECTION 02810 – IRRIGATION SYSTEM

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, Section 212 apply, except as modified herein.

#### A. Work Included in this Section:

- Landscape Irrigation System, including all work materials, appliances, tools, equipment, facilities, transportation, services necessary, and all operations in connection with and reasonably incidental to install the complete irrigation system.
- Record drawings.
- Irrigation work shall be coordinated with all other trades. Irrigation demolition and modification
- Sleeving for irrigation piping and wiring.
- Procurement of applicable licenses, permits, and fees.
- Coordination of Utility Locations ("Call Before you Dig").
- Furnishing and installing a backflow prevention device
- Services of factory field service person to supervise the assembly, installation, and start-up of the pumping system, the training of maintenance staff, and provision of O & M manual.
- Furnishing and installing a prefabricated, booster type pumping system including pumps, motors, electrical controls, and other items as specified on the drawings and specs.
- Connection of electrical power supply to the irrigation booster pumping system.
- Maintenance Period.

#### B. Work Not Included in this Section:

- Grading
- Landscaping

#### C. Related Work Specified Elsewhere:

- Cutting and Patching, Section 01045.

#### D. Quality Assurance:

- Permits: Obtain and pay for all permits and inspections required by outside agencies.
- Ordinances and regulations: Local, municipal, and state laws and rules and regulations governing or relating to any portion of this work are hereby incorporated into and made a part of these specifications, and their provisions shall be carried out by the Contractor. Ordinances and regulations include but are not limited to the following: California Code of Regulations, Title 24 (Latest Edition) Part 3 - California Electrical Code and Part 5 - California Plumbing Code; California Health & Safety Code,
- Anything contained in the specifications shall not be construed to conflict with any of these rules and regulations or requirements of the same. However, when the specifications and drawings call for or describe materials, workmanship, or construction of a better quality, higher standard, or larger size than is required by these rules and regulations, the provisions of the specifications and drawings shall take precedence.
- Protection: Erect and maintain barricades, warning signs and lights and provide guards as necessary or required to protect all persons on the site.

- Underwriters Laboratories: Electrical wiring, controls, motors, and devices shall be U.L. listed and so labeled.
- Installer qualifications (for solvent and rubber gasket joints): Each person shall be trained by the manufacturer's representative in techniques for making correct joints prior to performing work on the site.
- Work of this Section which is allied with the work of other trades shall be coordinated as necessary.
- Superintendent: A superintendent satisfactory to the Agency's Representative shall be always present on the site during the progress of the work. The Superintendent shall not be changed, except with the consent of the Agency's Representative. The Superintendent shall be authorized to represent the Contractor
- Discrepancies: When discrepancies exist between drawings and specifications, and no specific interpretation is issued prior to bidding, the decision regarding this interpretation will rest with the Agency's Representative. The Contractor will be compelled to act on this decision as directed. In the event the installation deviates from the directions given, it shall be corrected at the Contractor's expense.
- Manufacturer's directions: Manufacturer's directions and detailed drawings shall be followed in all cases where the manufacturers used in this Contract furnish directions covering points not shown in the drawings and specifications.
- Work called for on the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specifications.
- The Contractor shall not install the irrigation system as shown on the drawings when it is obvious in the field that obstructions, grade differences or discrepancies in equipment usage or area dimensions exist that might have been considered in the engineering. Such obstructions or differences shall be brought to the attention of the Agency's authorized representative. In the event this notification is not performed, the Contractor shall assume full responsibility for any revision necessary at no cost to the Agency.
- Coordination: Complete sleeve installation (not otherwise provided) in coordination with paving and other concrete pours; Coordinate to ensure that an electrical power source is in place; Coordinate system installation work specified in other Sections and coordinate with landscape installer to ensure plant material is uniformly watered in accordance with intent shown on drawings.
- Contractor is responsible for damage to site amenities during construction. Replace damaged items with identical materials of equal value to match existing conditions. Make replacements at no additional cost to contract price.
- All electrical control panels with controls must be built in accordance with N.E.C., U.L. and E.T.L. standards. The electrical components and enclosure must be labeled as a complete U.L. listed assembly with manufacturer's U.L. label applied to the door. All equipment and wiring must be mounted within the enclosure and labeled for proper identification.
- Provide single source responsibility for the manufacture, warranty, service, operation, and installation of a prefabricated, skid mounted, fully automatic constant speed pumping system as described in contract documents. Pumping system must conform to the following specifications in all respects. This specification covers the minimum requirements; however, it should not be construed as all inclusive.

**E. Submittals (Product Data):**

- Materials List and Manufacturer's Catalogs. Within 10 days after award of contract, submit four (4) copies of a complete materials list, including manufacturer's name and number covering all material required under this Division, together with four (4) copies of descriptive literature. Furnish information in 3-ring binder with table of contents and index sheet. Index sections for different components and label with specification section number and name of component. Furnish submittals for components on material list. Indicate which items are being supplied on catalog cut sheets when multiple items are shown on one sheet. Incomplete submittals will be returned without review.
- Materials List: Include sleeving, pipe, fittings, mainline components, sprinkler and bubbler components, drip irrigation components, control system components, shop drawings and other components shown on drawings and installation details or described herein. Include pipe sealant, wire, wire connectors, ID tags, and other miscellaneous items. Quantities of materials need not be included.

- Manufacturers' Data: Submit manufacturers' catalog cuts, specifications, and operating instructions for equipment shown on materials list.
- Shop Drawings: Submit shop drawings called for in installation details. Show products required for proper installation, their relative locations, and critical dimensions. Note modifications to installation detail.
- The Contractor shall furnish the articles, equipment, materials, or processes specified by name in the drawings and notes. No substitutions will be allowed without prior written approval by Engineer.
- Equipment or materials installed or furnished without prior approval of the Engineer may be rejected and the Contractor may be required to remove such materials from the site at his own expense.
- Manufacturer's warranties shall not relieve the Contractor of his liability under the guarantee. Such warranties shall only supplement the guarantee.
- Engineered Booster Pump Assembly: Materials List: Include pipe, fittings, pumps and motors, control system components, and electrical equipment. Quantities of materials need not be included; Manufacturers' Data: Submit manufacturers' catalog cuts, performance curves, specifications, and operating instructions for equipment shown on the materials list. Submit complete instructions for installation, operation, and recommended maintenance of the pump system and components; Submit shop drawings of proposed pump system. Show products required for proper installation, their relative locations, and critical dimensions. Submit technical data sheets, electrical schematics, sequence of operation, UL listing authorization form, and schematics of irrigation pump system within the proposed building with critical dimensions noted. Note any modification to the construction documents; The station must be completely wired, piped, hydraulically, electrically, and flow tested to full station capacity at factory prior to shipment to job site; Documentation of testing report must include name of test, date of test, name of the individual completing the test, name of the company completing the test, and a summary of the test results. If system fails any test, document any and retest until system passes test; Testing report must be verified by Owner prior to pump station shipment.

**F. Water Meters:**

Water meters are existing. See Plans for size and location. Contractor shall pay for all fees required to make connection to meter and water costs during construction and maintenance.

**G. Point of Connection:**

Make connection of irrigation system main line at PVC Main, in approximate locations shown. See Plans for details.

**H. Electrical Meters:**

Electrical meters are existing.

**I. Drawings:**

The drawings are diagrammatic only. It is the intent of the plans and specifications that the irrigation system shall efficiently and uniformly irrigate all areas according to horticultural and soil requirements, and that it shall be complete in every respect and shall be ready for operation to the satisfaction of the Agency.

Due to the scale of drawings, it is not possible to indicate all offsets, fittings, sleeves, etc. which may be required. Carefully investigate the structural and finished conditions affecting all of this work and plan this work, accordingly, furnishing such fittings, etc. as may be required to meet such conditions. Drawings are generally diagrammatic and indicative of the work to be installed. The work shall be installed in such a manner as to avoid conflicts between irrigation systems, planting and architectural features.

**J. Record Drawings:**

Record dimensioned locations and depths for each of the following:

- Point of connection.

- Sprinkler pressure line (mainline) routing. (Provide dimensions for each 100 lineal feet [maximum] along each routing and for each change in direction.)
- Flow meters.
- Gate valves.
- Sleeves/Conduits.
- Remote control valves.
- Quick coupling valves.
- Fertilizer injection system.
- Control wire routing.

Other related items as may be directed by the Agency representative.

Locate all dimensions from two permanent points (buildings, monuments, sidewalks, curbs, or pavements).

Record all changes which are made from the Contract Drawings, including changes in the pressure and non pressure lines.

Record all required information on a set of blackline prints of the drawings. Do not use these prints for any other purpose.

Maintain information daily. Keep drawings at the site at all times and available for review by the Agency representative.

When record drawings have been approved by the Agency representative, transfer all information to a set of reproducible prints using permanent India ink. Changes using ballpoint pens are not acceptable.

Make dimensions accurately at the same scale used on original drawings or larger. If photo reduction is required to facilitate controller chart housing, notes or dimensions must be a minimum 1/4 inch in size.

Reproducible prints (5 maximum) will be furnished by the Agency representative at cost for printing and handling.

Use appropriate eradicating fluid for removing original lines and dimensions where changes are made. Completed reproducible shall be equal to the original drawings.

Controller Charts. On the inside surface of the cover of each automatic controller, the Contractor shall prepare and mount a chart showing the valves and sprinkler heads serviced by that particular controller. All valves shall be numbered to match the operation schedule and the drawings. Only those areas controlled by that controller shall be shown. This chart shall be a plot plan, entire or partial, showing building, walks, roads, and walls. A photostatic print of this plan, reduced as necessary, and legible in all details, shall be made to size that will fit into the controller cover. Do not prepare charts until record drawings have been approved by the Agency's Representative. Provide one controller chart for each automatic controller installed. Identify the area of coverage of each remote-control valve, using a distinctly different pastel color, drawn over the entire area of coverage. Charts must be completed and approved prior to final review of irrigation system. This print shall be approved by the Campus representative and shall be hermetically sealed in 20 mil plastic (2-10 mil Pieces). This shall then be secured to the inside of the cover. Show controller designation on each chart.

**K. Miscellaneous Items to be Furnished by Contractor:**

- Provide the following tools as a part of this contract:
  - Six (6) wrenches for disassembling each type of sprinkler head used;
  - Two (2) operating keys suitable to operate each type of valve used;
  - Six (6) quick coupler valve keys to fit type of couplers used (complete with hose bibb);
  - Six (6) quick coupler lock type cover keys;
  - One (1) set of automatic controller cabinet keys for each controller used;
- Provide all required and necessary descriptive material in complete detail and sufficient quantity properly prepared in three (3) individually bound copies. Describe the material installed in sufficient detail to permit qualified operating personal to understand, operate and maintain all equipment. Each manual shall include the following: Index sheet, stating Contractor's address and telephone number; Duration of guarantee period with guarantee forms; List of equipment with names and addresses of manufacturer's



local representative; Complete operating and maintenance instructions on all major equipment; Spare parts list and related manufacturer information for all equipment.

- Present in hardback three-ring binders.

**L. Checklist:**

- Provide a signed and dated checklist and deliver to the Agency's Representative prior to final review of the work.
- Use the following format:
  - Confirmation of service pressure: psi, by whom and date.
  - Plumbing permits: if none required, so noted.
  - Materials approvals: approved by and date.
  - Pressure line tests: by whom and date.
  - Record drawings: received by and date.
  - Controller charts: received by and date.
  - Materials furnished: received by and date.
  - Operation and maintenance manuals: received by and date.
  - System and equipment operation instructions: received by and date.
  - Manufacturer's warranties if required: received by and date.
  - Written guarantee: received by and date.
  - Lowering of heads in lawn areas: if incomplete, so state.

**M. Delivery, Storage, Stockpiling, and Handling:**

Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws if applicable.

Handling of PVC Pipe and Fittings: The Contractor is cautioned to exercise care in handling, loading, unloading, and storing of PVC fittings. All PVC pipe shall lie flat so as not to subject it to undue bending or concentrated external load at any point. Any section of pipe that has been dented or damaged will be discarded and, if installed, shall be replaced with new piping. Pipe and fittings shall not be stored in direct sunlight.

Bulk Materials: Do not dump or store bulk materials near structures, utilities, walkways, and pavements, or on existing turf areas or plants; Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways

**N. Project Conditions:**

Site Inspections - Contractor must verify construction site conditions and note irregularities affecting work of this section. Report irregularities in writing to Engineer prior to beginning work; Commencement of work implies acceptance of existing site conditions.

Utility Locates ("Call Before You Dig") - Arrange and coordinate Utility Locates with local authorities prior to construction; Repair underground utilities that are damaged during construction. Make repairs at no additional cost to contract price.

Interruption of Existing Services or Utilities - Do not interrupt services or utilities to facilities occupied by the City of Downey or others unless permitted under the following conditions and then only after arranging to provide temporary services or utilities according to requirements indicated: Notify Engineer no fewer than two days in advance of proposed interruption of each service or utility; Do not proceed with interruption of services or utilities without the City of Downey's written permission.

**O. Guarantee:**

A letter of guarantee from each manufacturer shall be submitted to the Agency guaranteeing his materials for a period of one year against material defects and workmanship. In cases where longer guarantees are required by these specifications, such guarantees shall be submitted.

## II. MATERIALS

### A. Specifying by Name:

Whenever any material is specified by name and number thereof, such specifications shall be deemed to be used for the purpose of facilitating a description of the materials and established quality and shall be deemed and construed to be followed by the words "or approved equal". No substitution will be permitted which has not been submitted for approval to the Agency within 30 days after the contract has been awarded. Three (3) copies of descriptive literature, including pressure loss curves, nozzle performance characteristics, etc., shall be furnished for any materials submitted as "equal" substitutes. No item will be considered as "equal" if it is constructed of different materials or alloy or is of a different principle of operation. Piping, tubing, conduit, valve, or any device through which the flow of water must pass shall not cause a greater resistance, turbulence, or pressure loss due to friction than that material as engineered and designed into this system.

Pressure loss curves shall be certified by an impartial commercial testing laboratory with all costs for tests and reports being paid for by the Contractor wishing to make the substitution.

Contractor shall submit letter (with material list) stating his reasons for any substitution and showing amount of credit offered if substitution should be acceptable.

### B. General:

All materials shall be new and of size and type as called out on the drawings. All materials of like kind shall be of one manufacture.

### C. Valve Boxes for Main Shut-Off Valves:

Size and type as called out on the drawings and specifications.

### D. Backflow Preventer

Size and type as called out on the drawings.

### E. Red Brass Pipe:

Shall be Federal Specification No. WW-P-351 medium weight, IPS, with threads to conform to ASA

Specification B2. Fittings shall be medium pattern, banded, threaded with standard taper pipe threads.

### F. Fittings - Steel:

150 lb. galvanized malleable iron, banded.

### G. Unions - Steel:

Galvanized steel with brass to iron seat, minimum 300 lb. WOG, ground joint.

### H. Risers - Ferrous Metal:

Shall be galvanized steel pipe (to strainer assembly). Material for sprinkler head risers shall be as called out on the drawings.

### I. Pipe Wrap:

Galvanized steel pipe to strainer assemblies shall be field wrapped as detailed or to 6 inches above finished grade. Use ten mil PVC tape, two layers (half-lapped) to equal forty mil thick total wrapping. Clean surfaces and prime with solution required by manufacturer of tape. Field wrap all joints with same materials leaving identification marks visible, re-apply wrap as recommended by tape manufacturer. All wrapping to be tested in the presence of the Agency Representative using approved detector.

### J. PVC Pipe (General):

All pipe to be permanently and continuously marked with manufacturer's name, pipe size (IPS) and schedule (D-1785-68 for schedule pipe), manufacturer's lot number and NSF approval. Pipe with dents, ripples, wrinkles, die, or heat marks is not acceptable. Pipe shall be delivered to the site in 20- foot lengths.

**K. Tracer Wires:**

A No. 12. Green Type TW plastic-coated copper tracer wire shall be installed with non-metallic main lines.

**L. Threaded PVC Nipples:**

Schedule 80, Type 1, 3-inch minimum length, except where detailed otherwise on drawings. PVC domestic main to drinking fountains shall be PVC Schedule 80 solvent welded plastic pipe: gray in color, meeting ASTM D-1785.

**M. PVC Mainline:**

Shall be 1120/1220 normal impact, 2" through 12" use Schedule 40 with integrally thickened bell ends, solvent weld type meeting ASTM D-1785, 2 through 22", use Class 315, solvent weld type meeting ASTM D-1785, 3" and larger use Class 200 O-ring gasketed pipe. All pressure supply lines under vehicular paving shall be installed in a PVC Schedule 40 sleeve.

**N. PVC Laterals (Non-Pressure Piping):**

Normal impact, Schedule 40, solvent weld type meeting ASTM D-1785.

**O. Fittings - PVC:**

For make-up shall be of same chemical compound as pipe on which it is installed. Use Schedule 40 medium-wall fittings for any "all socket" connections. Use Schedule 40 heavy-wall fittings for all fittings with one or more threaded outlets. Fittings for ring-type connections shall be compatible with the pipe on which they are used. Sealing rings shall be procured from the Manufacturer of the pipe and meet configuration of grooves and diameters provided.

**P. Fitting for O-Ring Gasketed Pipe:**

Fitting shall be ductile iron, slanted, deep bell, gasketed style make in accordance with ASTM A-536, Grade 65-45-12. Fittings shall have four lugs to accommodate joint restraints and other fittings. Bell section shall allow 5-degree freedom of pipe deflection within the bell end. Gasket design shall be re-enforced "U-Cup" configuration to seal and assist in restraining pipe at all pressures. Fittings shall be as manufactured by Leemco, Inc. or approved equal.

**Q. P.V.C. Pipe Compound:**

Plastic pipe and threaded fittings: Assemble using teflon tape applied to male threads only.

**R. Primer:**

For PVC solvent weld connections shall be as recommended by the manufacturer of the PVC pipe. Primer shall be chemically compatible with the pipe, fittings, and solvent. No primer need be used if "Christy's Red Hot Blue Glue" is used as solvent material.

**S. Solvent:**

For PVC solvent weld connections shall be as recommended by the manufacturer of the PVC pipe. Solvent shall be chemically compatible with the pipe, fittings, and primer.

**T. Sprinkler Risers:**

The riser shall be PVC Schedule 80 to fit sprinkler opening in swing joint assembly and proper length as detailed on the drawings.

**U. Valves:**

- **Ball Valve:**

- 2 2 inches and smaller bronze ball valve (unless otherwise noted on drawings); ASTM B-584 Alloy-844, 150 PSI saturated steam-600 WOG rating. 2-piece body, chrome plated ball, blowout-proof stem UL listed.

- **Check Valves:**

- Swing check valve, 2 inches and smaller on non-pressure lines: bronze or plastic construction, 100-pound S.W.P. female i.p.s.
- Swing check valves, 2-1/2 inches and larger on pressure lines: cast iron, 150-pound class with no-slam feature.

- **Couplers:**

- Same manufacturer as quick coupling valve; cast bronze, machined shank, coupler to include operating handle. Top of coupler equipped with 3/4" hose swivel.

- **Gate Valves:**

- 2 inches and smaller (unless otherwise noted on drawings): ASTM B62 brass body, 150- pound saturated steam rated; with screwed joints; non-rising stem; screwed bonnet solid disc. Provide with brass or bronze handwheel.
- 3 inches and larger (unless otherwise noted on Drawings): ASTM A-126 class B, iron body 150-pound W.O.G. with flanged joints, non-rising stem; bolted bonnet and double disc, equipped with operating nut, or as otherwise approved.

- **Remote Control Valves:**

- All bronze globe type, contamination proof, slow closing, 150 lb.; electrically operated, 24- volt, epoxy encapsulated waterproof, solenoid to be an integral part of the unit; throttling device with cross arm on top; manual operated to cause valve to open and close without use of electricity. Manual operator shall be provided by the factory and not fabricated by the Contractor. Valves shall be of same manufacture as automatic controller unless noted otherwise. Valves shall have one-year manufactures warranty.

- **Master Valve:**

- As provided with pre-manufactured Booster pump.

**V. Sprinkler Heads:**

Make, size, type and performances as called out on the drawings.

**W. Automatic Controller:**

Make, size, type and performances as called out on the drawings.

**X. Valve Boxes:**

Valve boxes unless otherwise noted shall be fabricated from a durable plastic material resistant to weather, sunlight, and chemical action of soils. They shall be green in color. The cover shall be secured with a stainless-steel bolt mechanism. The cover shall be capable of sustaining a load of 1500 PSI. Valve box extensions shall be by the same manufacturer as the valve box. All valve boxes shall be as manufactured by Brooks, Carson or an approved equal.

Quick coupling valve boxes shall be round. The cover shall be heat branded with the letters "QCV," 2" high.

Gate valve boxes shall be round. The cover shall be heat branded with the letters "GV," 2" high.

Remote control valves shall be 12" X 18". The cover shall be heat branded with the letters "RCV" and the valve number in characters 2" high.

Splice boxes shall be 12" X 18". The cover shall be heat branded with the letters "SB," 2" high.

Valve boxes for moisture sensing stations shall be 12" X 18". The cover shall be heat branded with the letters "MSS," two inches high.

Traffic area boxes: concrete cast iron lid designed for vehicular traffic use.

**Y. Booster Pump Assembly - General Requirements:**

The pumping system shall conform to the following specifications in all respects. This specification covers the minimum requirements; however, it should not be construed as all inclusive. It is the successful vendor's responsibility to include all necessary appurtenances to provide for a complete, automatic, smooth operating, and reliable pumping system. The manufacturer shall supply a complete set of general arrangement drawings, electrical power schematics, and control schematics in the operations and service manual.

The pumping system must automatically maintain a constant discharge pressure regardless of varying flow demands within the station rating. The prefabricated pumping station must have a capacity as shown on the construction documents and a station discharge pressure downstream of all pump system components as shown on the construction documents.

The station shall be completely piped, wired, hydraulically and electrically tested on a structural steel skid before shipment to the job site.

Construction must include skid assembly to support all components during shipping and to serve as the installed mounting base. Base must be of sufficient size and strength to resist twisting and bending from hydraulic forces and support the full weight of pumps and motors. Skip welding is not acceptable during fabrication of the skid.

All pump station components shall be supplied by and be the responsibility of one manufacturer, even though some components were manufactured by others.

The pump station and related equipment shall meet all the general and technical specifications; shall be designed, fabricated, and installed in a workmanlike manner; and shall be delivered within schedules negotiated between Contractor and manufacturer. The entire station must be U.L. Listed.

All components of the pumping system must be designed to function in an outdoor environment exposed to all of the elements. Furnish protective enclosures and covers as required for proper operation of the system.

Provide a factory-trained technician to supervise the installation of the pump station, pumps, and motors: In addition to the time required for installation supervision, the technician must provide a minimum of 1 day of training for the Owner's staff in the operation, maintenance, and programming of the pumping system; Acceptable Manufacturers: WATERTRONICS, P.O. Box 530, Hartfield, WI 53029. Contact Phil Vangene, Sales, (925) 250-5885, email pvangene@gte.net.

**Z. Booster Pump Assembly:**

- Station Performance:
- Power Requirement:
- Model Description:
- Not Included: Crane To Off-Load and Set Pump Station
- Shipment: A firm delivery date will be established and transmitted to purchaser when non-stocked material deliveries are confirmed. If no delays, estimated 6-7 weeks after receipt of signed submittal and drawing.
- Delivery and Set-Up (Installer Responsibility)
  1. All reasonable efforts will be made to meet the requested delivery date after the receipt of a signed submittal; however, Watertronics will not be liable for delays in delivery.
  2. Pump station components shipped separately from the station, at the Customer's request, may incur additional freight charges, payable by the Customer.
  3. Customer will be responsible for having job site readily accessible for station delivery.
  4. Customer will provide the equipment and personnel required to unload and/or set the pump station.
  5. Station Set-up: not included.
  6. Customer will be responsible for electrical permit if required.
  7. Customer will be responsible for primary electrical hookup to pump station.
  8. Customer will be responsible for making all piping connections.

9. Customer will be responsible for building modifications if required for installation.
10. Customer will be responsible for wet well, slab, or concrete work.

- Start-Up:
- Warranty:
- Power Supply:
- Change Orders:

**AA. Electrical Requirements To Booster Pump - (240 V):**

- Service to booster pump existing and final hook up shall be provided by electrical subcontractor.
- Electrical equipment installed outside shall be NEMA 4 type.
- All connections between electrical services and equipment shall be in rigid galvanized electrical conduit, with conduit and wiring size as required.
- To be complete in every respect to City Electrical Code, ready for use and in accordance with manufacturer's requirements. Provide separate power shut-off switch at panel for each controller. All wiring in galvanized conduit and fittings from source provided under the electrical section. No running threads accepted; use nipples. Conduit system shall be 660-volt insulation, NEC standard annealed copper wire and shall be minimum AWG #12 TW or RW. Protect each controller by a code approved ground connection. Supply to be 120 volts, 60 cycle, single phase, one amp. Use only galvanized steel fasteners in securing controllers in position. Install new controller as detailed on drawings.

**BB. Electrical Requirements from Automatic Controllers (24 volts):**

- **Control and Common Wire:** To remote control valves wires shall be U.F. type, U.L. approved, AWG number 14 solid strand copper wire with minimum 4/64" PVC coating, 600-volt, 75 C. "Common" wire to be white coated. Each controller to have a different color pilot wire where more than 2 controllers are on a site.
- **Wire Connectors for Direct Burial Conductors (24 volt):** Splices, where permitted, shall be waterproofed using Rain Bird or Pen-Tite Connectors.
- **Di-Electric Isolation:** Provide between all connections joining ferrous and non-ferrous metals, or old (existing) ferrous and new ferrous metals. Submit for approval type intended for use.

**III. INSTALLATION**

**A. General:**

- All work shall be performed by competent, experienced workmen and in a manner to coincide with methods as set forth by the manufacturers of the equipment to be used and as acceptable to the Agency Representative. No consideration will be given to any design changes unless called for by the Agency Representative.
- Contractor shall be responsible for damages caused during his operations to any existing underground utility lines including existing irrigation control wires, storm sewers, sanitary sewer systems, gas lines, potable water lines, irrigation lines, telephone cables, gasoline or oil lines, electrical cables, or any other systems (buried or overhead). If such damage should occur, Contractor shall immediately notify Landscape Architect, Agency, and department affected by such damages and shall pay all ensuing costs.
- Where it is necessary to excavate adjacent to existing trees, use all possible care to avoid injury to trees and tree roots. Excavation in areas where 2 inches and larger roots occur shall be done by hand. Roots 2 inches and larger in diameter, except directly in the path of pipe or conduit, shall be tunneled under and shall be heavily wrapped in burlap, to prevent scarring or excessive drying. Where a ditching machine is run close to trees having roots smaller than 2 inches in diameter, the wall of the trench adjacent to the tree shall be hand trimmed, making clean cuts through. Roots 1 inch and larger in diameter shall be painted with two coats of Tree Seal, or equal. Trenches adjacent to trees would be closed within 24 hours. Where this is not possible, the side of the trench adjacent to the tree shall be kept shaded with burlap or canvas.
- Comply with all governing construction and plumbing ordinances for all work under this contract.
- All work shall be assembled to conform to details and notes on the drawings, whether or not mentioned in the specifications.

#### **B. Site Reviews:**

- Before any work commences, a conference shall be held with the Agency's Representative and Contractor regarding general requirements of this work.
- Prior to trenching, Contractor shall be responsible for verifying existing pressure at point of connection. If pressure varies from what is indicated on drawings, the Contractor shall immediately notify Agency representative.
- Contractor's responsibility:
  - Examine surfaces for conditions that will adversely affect execution, permanence, and quality of work.
  - Verify that grading has been completed and the work of this section can properly proceed.
  - Exercise extreme care in excavating and working near existing utilities. Contractor is responsible for damages to utilities which are caused by his operations or neglect. Check existing utility drawings for locations.
  - Notify the Agency's Representative in writing, describing unacceptable conditions.
  - Do not proceed with work until unacceptable site conditions are corrected or existing utilities are located.

#### **C. Preparation:**

- Exercise care in excavation and working near existing utilities. Check existing utility locations. Contractor shall be responsible for damages to utilities which are caused by his operations or neglect.
- Coordinate installation of the sprinkler irrigation materials, including pipe, so there shall be no interference with the utilities or other construction or difficulty in planting trees, shrubs, and ground covers.
- Do not proceed with work until unacceptable site conditions are corrected or existing utilities are located and/or marked out in field.
- Protection: Provide barricades, coverings, warning signs, lights and other protection required by local code or OSHA to prevent damage to existing improvements to remain and protect the public; Protect improvements on adjoining areas as well as those on the project site; Restore any improvements damaged by this work to original condition, as acceptable to Engineer or other parties or authorities having jurisdiction; Protect existing trees and other vegetation to remain against damage. Do not stockpile construction or excavated materials within drip lines.

#### **D. Verification of Dimensions**

- Verify all horizontal and vertical site dimensions prior to staking of heads. Do not exceed spacings shown on drawings for any given area. If such modified spacings demand additional or less materials than shown on the drawings, notify Architect before commencing work.

#### **E. Irrigation System Refurbishment:**

- The contractor shall abandon irrigation lines in place and remove and dispose of all sprinkler heads and remote control valves within the areas of the proposed improvements. During the duration of the construction, the contractor shall be responsible for maintaining the remaining portions of the existing irrigation system in operation and supporting the livelihood of the existing plantings which are or may be affected by the project at all times. The Agency does not have accurate information as to the exact layout of construction of the affected irrigation systems to be removed. The contractor shall expose all points of connection, of the new system to the existing system prior to the start of construction of each sprinkler system.
- The contractor shall submit a new layout for the locations of the new locations of the sprinkler heads and supply lines for approval by the Landscape Architect. The submitted layout shall be per the following:

- New irrigation lines shall be complete with risers, double swing joints on all irrigation heads and irrigation or sprinkler heads.
  - New irrigation line shall match the size and kind of the existing irrigation line to be abandoned.
  - The new layout shall be connected to the existing line, such that the existing control setup shall be utilized.
  - Existing control wiring shall be used.
  - Sprinkler and irrigation heads shall be spaced as per the manufacturer's recommendation and/or as directed by the Landscape Architect.
- The contractor shall preserve and protect all pipe that is not to be removed and shall preserve and protect all existing control wiring in operation.
  - No work shall be done on the installation of the new supply lines and sprinkler or irrigation heads until the contractor has staked the line and location of the proposed new supply lines and sprinkler or irrigation heads and obtained the approval of the Landscape Architect. the installation of all sprinkler and irrigation materials, including pipes and risers, shall be coordinated with the submitted layouts to avoid interfering with the trees, shrubs, or other plantings.

**F. Manufacturer's Requirements:**

- Manufacturer's requirements for installation of products shall apply:
  - When no other direction is given.
  - When it is a more stringent requirement than the Standard Specifications and these Special Provisions.

**G. Workspace:**

- The Contractor shall erect fences or guards as are required for the protection of the public and protection of construction materials and maintain same in good repair until the completion of the work under the contract.

**H. Drawings of Record:**

- Obtain blue-line ozalid prints from the Agency Representative and maintain daily records showing every change from the contract drawings of all locations of main lines, buried valves, conductors, quick coupler valves, and plugged or capped outlets. Locate each item from two points of architectural permanence, i.e., curbs, walls, light standards, etc. Do not dimension from sprinkler heads or other parts of the irrigation system. Keep record drawings on site for daily observation by the Agency Representative. All dimensions to be taken prior to backfill. On date of final observation, deliver corrected drawings to the Agency Representative. Final drawings shall be prepared by the Contractor on sepia prints obtained from the Agency Representative, showing all field notes in India ink finalized by a competent draftsman. Delivery of prints does not relieve the Contractor of responsibility for providing any information that may be omitted from the prints.

**I. Trenching:**

- Do all excavation for installation of all work included in contract. Mechanical trenching machines shall be type to cut trenches with straight, parallel sides. Trenches to be only wide enough as may be required to lay the pipe and control wires. "Pulling" of main line pipe and/or control wires will not be permitted. Contractor shall use all possible care to protect existing trees and plants during trenching. Roots 2" or larger shall be tunneled under and wrapped with wet burlap to prevent scarring with two coats of approved sealer manufactured for this purpose. Cover all trenches in root areas (only while open) with wet burlap and backfill within 24 hours after opening the trench. Obtain Agency Representative's approval before cutting any root over one-inch diameter. All trenching in such areas shall be done by hand.

**J. Backfill:**



- After the work has been installed to depths as detailed on the drawings, flushed, tested, and proven tight in the presence of the Agency Representative, backfill with fine granular materials as approved by the Agency representative. Allow no rocks or other objects larger than one-inch diameter to fall in the first 6" of cover. Backfill carefully and tamp properly to avoid any voids. Flooding of trenches shall be done only with the approval of the Agency Representative; however, all sandy soils shall be flooded during the backfill-compaction operation.
- After compacting backfill over all pipelines to equal density of adjoining undisturbed soils, Contractor shall remove all remaining debris caused by his operation from the site and dispose of same in legal manner. All trenches shall be left flush to the adjoining undisturbed grades. Any work covered prior to field observations by the Agency Representative shall be uncovered at the expense of the Contractor to allow for such observations.
- If settling occurs and subsequent adjustments in pipe, valves, sprinkler heads, lawn planting, or other construction are necessary, the Contractor shall make all required adjustments without cost to the City.
- Under no circumstances shall truck wheels be used to compact soil

**K. Laying of Lines:**

- Lines shall be staked and installed in the locations shown on the drawings. Discrepancies between drawings and site shall be brought to the attention of the Agency Representative prior to trenching. Do not exceed maximum spacings shown on drawings, nor exceed the GPM on the pipe sizes shown. Assemble all pipes free from dirt and scale; ream and deburr. Piping and electrical sleeves under concrete shall be set in place prior to paving work. If pipe must be laid after paving is in place, it shall be done by jacking, boring, or hydraulic driving.
- If cutting or breaking of any paving is necessary, it shall be done and replaced with like material at the expense of the Contractor. Obtain approval of Agency Representative prior to any cutting or breaking. Hydraulic driving will not be permitted under asphalt paving. All sleeves set in place under paving shall extend 18" minimum beyond such paving and be capped hand tight. No fittings, including couplings, will be permitted under surfaces to be paved except where the length of the line under the paving exceeds 20 feet or where lines are encased in sleeves.
- Unless installed in a PVC sleeve, all pipes under pavement surface to be installed a minimum of 24 inches below A.C. paving with a 6-inch bedding and a 6-inch cover of sand backfill.
- Replace and restore all surfaces to original condition, including grade and landscaping.
- Restoration work shall match the original work in every respect, including type, strength, texture, and finish.
- In new paved areas, coordinate installation of piping and wires under paved areas with General Contractor.
- If the only piping installed is over 20 feet long, pressure testing is required for that section at the time of installation. Upon completion of piping installation, the entire system must be tested.
- If wire under paved areas cannot be continuous, all splices shall be enclosed in an approved box.

**L. Assembly of Metal Pipe:**

- Do not bend or spring pipe; make all offsets or changes in direction with fittings. Cut threads with sharp, clean dies to conform to ASA specifications B2. Make up joints by applying oil base compound to male threads only. Remove excessive compound after makeup.

**M. Assembly of PVC Pipe:**

- Handle with care when loading, unloading, transporting, and storing to avoid damage. Store pipe and fittings under cover before using. Transport in vehicle with bed of sufficient length to carry pipe flat and fully supported. Store pipe in same manner. Notify Agency Representative when each pipe and fittings

shipment reach the site, for observation. Rejected materials shall be immediately removed from the site and replaced with new shipment of different batch number.

- General: Maintain a minimum horizontal distance of 3'-0" between control valves that are installed side by side; Maintain a minimum 1'-6" distance between fittings installed in main line; Crossing fittings are not allowed.
- Generally, piping under existing walks is done by jacking, boring or hydraulic driving; where only cutting or breaking of sidewalks and/ or concrete is necessary, it shall be done and replaced by the Contractor as part of the contract cost. Permission to cut or break of sidewalks and/or concrete shall be obtained from the Engineer. No hydraulic driving will be permitted under concrete paving or A.C. paving.
- Carefully inspect all pipe and fittings before installation, removing dirt, scale, and burrs and reaming; install pipe with all markings up for visual inspection and verification.
- Exercise care in handling, loading, unloading, and storing plastic pipe and fittings; store plastic pipe and fittings under cover until ready to install; transport plastic pipe on a vehicle with a bed long enough to allow the pipe to lay flat, avoid undue bending and any concentrated external load.
- Remove all dented and damaged pipe sections.
- Contractor shall install concrete thrust blocking at all changes of direction and terminal points of pressure pipe.
- All lines shall have a minimum clearance of 6 inches from each other and 12 inches from lines of other trades.
- Parallel lines shall not be installed directly over one another.
- In solvent welding, use only the specified primer and solvent cement and make all joints in strict accordance with the manufacturer's recommended methods; allow solvent welds at least 15 minutes setup time before moving or handling and 24 hours curing time before filling. 360-degree applicators shall be used to apply primer and solvent on sizes 2-1/2 inches and larger.
- Center-load pipe with approved backfill to anchor pipe before testing to prevent pipe from moving under pressure. Do not cover couplings and fittings.
- All threaded plastic-to-plastic connections shall be assembled using Teflon tape.
- For plastic-to-metal connections, work the metal connections first. Use a non-hardening pipe dope on all threaded plastic-to-metal connections, except where noted otherwise.

**C. Joining by Ring Seals:**

- Provide for expansion and contraction at each end. Use rubber ring and lubricate with non-toxic lubricant. Center load, leaving all connections exposed. Do not lay pipe in trench containing water or at less than 32 degrees F.

**D. Joint Restraints:**

- Ductile iron joint restraints shall be installed on all fittings and gate valves for all IPS-Size, ring joint PVC pipe. The joint restraint shall be capable of securing the PVC pipe directly to the lugs on the Leemco and HARCO deep bell ductile iron fittings without the use of bolts, links, and adapters. The joint restraint shall be capable of securing PVC pipe to PVC pipe and PVC pipe to ring joint gate valves without the use of threaded linkages.
- All ductile iron fittings shall be secured to full-length pipes and on all bends and tee branches, the next joint of the pipe shall be secured. At least two full lengths of pipe must be secured when attached to bends and tee branched 8" and larger, and at least three full lengths when attached to a fitting shall also be secured.

- The joint restraint must be similar in all respects to the joint restraints as manufactured by Leemco, Corona, California.

**E. Joining by Solvent Weld:**

- Use non-synthetic brush to spread primer and solvent using no larger than pint-sized cans. Clean and refill cans each day. Cut pipe square, ream, chamfer outside end at 10 degrees. Clean and dry pipe and fitting socket. PVC solvent weld connections shall be made as recommended by the manufacturer of the PVC pipe. Bottom the pipe in socket and turn 90 degrees. Hold joint together 30 seconds. Wipe off excess solvent. Allow to set 30 minutes before moving. Snake pipe side to side in trench bottom, keeping 4" horizontal clearance between two pipes in same trench. Do not lay pipe in trench containing water or at less than 32 degrees F. Center load immediately leaving joints exposed.

**F. Locating Assemblies and Valves:**

- Install backflow assemblies in shrub areas at minimum height permitted by local code. Paint assemblies with 2 coats of flat black enamel.
- Hose bibbs: Locate bibbs in shrub areas within 12 inches of header or hardscape.
- Quick coupling valves: Unless otherwise indicated, locate valves within 12 inches of hardscape.
- Remote control valves: Locate as indicated on Drawings within 12 inches of hardscape, with access sleeve, unless otherwise noted.
- Fill area under valve box with minimum 3 cubic feet of pea gravel before box is installed.

**G. Flushing of Lines:**

- Mains shall be flushed before attaching remote control valves, quick coupler valves and with pipe center loaded. All water being discharged shall be temporarily piped up and out of the trenches. Trenches to be kept dry for pressure tests to follow. Install all valves after approval of flushing procedure by the Agency Representative.
- Laterals shall be flushed before sprinkler heads are in place. Cap all risers, apply pressure, remove caps in sequence starting at the control valve. Replace caps before removing caps to follow. Continue to end of each lateral. Flush until all foreign matter and mud is cleared of the system. Contractor to provide all materials required for flushing operations.

**H. Operational and Coverage Test:**

- Activate each remote-control valve in sequence from controller. Provide either one additional personal with radio or use handheld remote to activate remote control valves from controller. Manually activating remote control valve using manual bleed mechanism at remote control valve is not an acceptable method of activation. Engineer will visually observe operation, water application patterns, and leakage. All irrigation sprinklers systems and sub-surface drip systems must provide 100% head-to-head (emitter to emitter) coverage. Any areas not receiving head-to-head (emitter to emitter) coverage shall be corrected and retested per the Engineer.
- Replace defective remote-control valve, solenoid, wiring, or appurtenance to correct operational deficiencies.
- Replace, adjust, or move water emission devices to correct operational or coverage deficiencies.
- Replace defective pipe, fitting, joint, valve, sprinkler, or appurtenance to correct leakage problems. Cement or caulking to seal leaks is prohibited.
- Repeat test(s) until each lateral passes all tests. Repeat tests, replace components, and correct deficiencies at no additional cost to LACC.

- All heads must be adjusted to prevent over spray to buildings, walks, streets, etc. (See adjusting the system section).

#### **I. Engineered Booster Pump Testing:**

- Notify the Owner's Representative three days in advance of testing.
- On completion of assembly of the pumping station, all discharge pipe and valves must be hydrostatically tested at 150% of the maximum pump shutoff head.
- Bump manual motor starter controls to prove correct rotation and secure local inspection/approval.
- Test, verify, and demonstrate to the Owner's Representative the proper operation of all control and safety shut off devices.
- Verify flow and discharge pressure from the pump system and demonstrate to the Owner's Representative system performance based on the specified values.
- All costs, including travel expenses and site visits by the Engineer, for any additional reviews that may be required due to non-compliance with the Construction Documents are the sole responsibility of the Contractor.
- Coordinate water availability with the Owner's Representative. Verify proper operation and set points of the pressure relief valves.
- Acceptance -Test Prior to Final Inspection:
  - Upon completion of construction and prior to Final Inspection, an Acceptance Test must be passed.
  - Coordinate start of Acceptance Test with the Owner's Representative.
  - During the Acceptance Test, the pumping system must be fully operational. The pumping system must operate with no faults for 14 consecutive days. If at any time during the 14-day test period, a system fault occurs, the source of the fault must be determined and corrected, and the 14-day evaluation period will start again. If a system fault occurs, make repairs within 24 hours of notification from Owner's Representative. Document any faults in the proof of test report listing date of fault, fault, cause of the fault and the corrective action taken.
  - When the system has operated for 14 days without fault, contact the Owner's Representative to schedule Final Inspection.

#### **J. Pumps and Motors:**

- Shipping, off-loading and the technical start up shall be furnished by the pump station manufacturer. Location and mounting details shall be furnished to the Contractor by the pump station manufacturer.
- Electrical connection by others shall consist of a single conduit with conductors from the electrical service disconnect to the pump station main disconnect.
- Provide technical start up procedures by the pump station manufacturer including: Station start up and pressurization; Pressure, flow, and programming adjustments; Monitoring of park irrigation cycle when possible. Technician will instruct operations personnel as to the operation, adjustment, and maintenance of the pump station.

**K. Pressure Tests:**

- Do not backfill over any line more than is necessary for testing until it has been inspected, tested, and approved.
- Perform all hydrostatic tests in presence of the Agency Representative after flushing lines. Maintain 125 psi on main lines for four (4) hours with all air expelled from line without quick coupler and control valves in place. All leaks shall be corrected in mechanical manner without use of epoxy fillers or other filler compounds. Provide all equipment for tests including force pump and pressure gauges. No pressure test shall be required for lateral lines unless otherwise noted.
- If pressure tests are noted, lateral lines shall be pressure tested at 100 psi for two (2) hours where they are providing water to street trees only and will be primarily buried under concrete or asphalt paving. Swing joints do not need to be tested.

**L. Laying of Control Wires (24 volt):**

- Lay wires in common trench with main lines unless otherwise approved. Splicing allowed only every 500 feet. Provide 2 feet expansion loop at splice. Use concrete electrical junction box with bolt down lid at each splice point. White coated common wire in junction boxes to be tagged with 1/4" wide embossed plastic labeling tape showing controller designation. Use plastic electrical tape and bind all control wires in bundles at 10-foot intervals. All approved splices, including splices at remote control valves, shall be waterproof and enclosed in an acceptable box. Install PVC sleeve where wire is not installed with main lines.

**M. Laying of Tracer Wires:**

- Tracer wire shall be placed on bottom of trench under vertical projection of pipe, paved carefully to avoid stress from backfilling, and shall be continuous throughout length of pipe with spliced joints soldered and covered with insulation type tape.
- Tracer wire shall follow main line pipe and branch lines and terminate in yard box with gate valve that controls these main irrigation lines. Provide enough length of wire to reach surface grade, bend back end of wire to make a loop and attach a Dyno-tape plastic label with designation of ATracer Wire@.
- Location of tracer and its termination shall be recorded on Project Record Documents.
- Tracing wire Test: Pass current through wire and demonstrate that wire is capable of locating the pipe; If wire will not pass current, locate break and test until tracing wire works in accordance with its intended use.

**N. Pipe Sleeving and Boring:**

- All sleeving shall be 2 times the diameter of the pipe used. Sleeving for control wires shall be 2 inches in diameter minimum.
- All trenches for sleeving must be compacted to 95% compaction using manual or mechanical taping device.
- Contractor shall be responsible for the installation of all sleeves required for the irrigation system not listing in the drawings.
- Bore for sleeves under obstructions that cannot be removed. Employ equipment and methods designed for horizontal boring.

**O. Thrust Blocks:**

- Use thrust blocks for fittings on pipe greater than or equal to 3-inch diameter.
- Size, orient, and place cast-in-place concrete against undisturbed soil as shown on installation details.

- Wrap fitting or component with plastic to protect fitting from concrete. Do not bury fitting or component in concrete.
- Commercially delivered concrete requires a 3,000 PSI mix. If pre-mix bags are used, mix per manufacturer's recommendations (maximum 1 gallon of water to 80-pound bag of pre-mix).
- Contractor is responsible for performing a slump test (minimum of 2-inches to a maximum of 4- inches) if requested by Engineer.

**P. Sprinkler Heads:**

- Install the sprinkler heads as designated on the drawings. Sprinkler heads to be installed shall be equivalent in all respects to those itemized on plans and details.
- Spacing of heads shall not exceed the maximum indicated on the drawings. In no case shall the spacing exceed the maximum recommended by the manufacturer.
- Irrigation heads along walks, curbs, paving, etc. shall be set flush with finish grade of paved areas. Irrigation heads in turf areas shall be positioned 1/2" above finish grade in seed and 1-1/2" inches above finish grade in sod.
- All sprinkler heads shall be set perpendicular to finish grades.
- Sprinkler Analyzer Kit: Use a pitot tube pressure gauge at the furthest rotor sprinkler assembly from the respective remote-control valve. Adjust pressure at each rotor remote control valve to provide an operating pressure as specified in the legend at the worst-case rotor sprinkler. Typically, the worst-case sprinkler is the sprinkler furthest from the remote-control valve. Complete pressure adjustment for every rotor remote control valve; Turn over pitot tube pressure gauge to the Engineer at completion of construction

**Q. Identification:**

- Identify valves, valve boxes, and related appurtenances with Christie ID tags. Identify pumps with decals.
- Heat brand box type identification and valve number in box lids.

**R. Adjusting System**

- Adjust entire system prior to coverage test and again at conclusion of maintenance period.
  - Set all shut-off valves in the system to full open position.
  - Adjust all stationary heads to equal and uniform coverage using adjusting screws in each sprinkler head and by control of the throttle device in each remote-control valve.
  - Adjust all rotary head systems using pitot tube with pressure gauge attached. Set most critical head in each system to meet nozzle pressure as called out on the legend by regulating the remote-control valve while pitot tube-gauge assembly is inserted in nozzle. Adjust all radii to fit requirements on drawing if heads are equipped with such a device.
  - Adjust arcs of all adjustable arc type heads so as to prevent overspray on areas to be kept dry. This can also mean the replacement of nozzles or arcs in stationary heads to nozzles of difference cut, i.e., 180° nozzles to change to 120° nozzles, etc.
  - At proper time of plant growth, or when directed by the Agency Representative, Contractor shall set automatic controller to operate as noted on the drawings and shall at that time readjust all remote-control valves in the system to operate heads at optimum performance based on nighttime pressures and simultaneous demands through the supply lines. This may call for repeat of the pitot tube-pressure gauge tests described above if the Agency Representative calls for such procedure, at no additional cost to the Agency.

**S. Site Cleaning:**

- Clean all debris from site, remove all storage rooms and all other constructions and make site ready for planting work to follow. Work or debris not cleared for landscape work may be backcharged to this subcontractor by the landscape subcontractor.

**T. Observations:**

- Observations will be performed by the Agency Representative at the following times and at random visits when the observer may be on the site.
  - Prework conference. To be conducted prior to any irrigation work under this contract.
  - Observation of flushing.
  - Observation of pressure test.
  - Observation of coverage performance.
  - Final observations of the completed installation.
  - Contractor shall not cover any work prior to observation by the Agency Representative.
  - All observances called for by the Contractor shall be requested in writing, at least 48 hours prior to the anticipated observation.
- Contractor shall provide "walkie-talkie" equipment and/or personnel to maintain communication from review area to automatic controllers.
- All work shall meet the approval of the Agency Representative or be rectified by the Contractor to a condition that does meet this acceptance at no additional cost to the Agency. If the Contractor calls for observations and is not ready for the observations, it shall be backcharged, hourly, including travel time for all members of the team of observers involved.

**U. Lowering of Heads, Valve Boxes, Quick Coupler Valves, etc.:**

- All equipment that may be damaged by mowing shall be set flush to finished grade as called out on the drawings, prior to final acceptance of the work.

**V. Completion Clean-Up:**

- Upon completion of work, the Contractor shall smooth all ground surfaces. Refuse and excess dirt, excess materials, rubbish, debris, etc. shall be removed from the site. All walks, adjacent streets, parking lots, curbs, gutters, and trails shall be broomed or washed down; any damage sustained on the work of others shall be repaired to original conditions. Remove construction equipment from the premises.

**W. Final Field Observation Prior to Acceptance:**

- The Contractor shall operate each system in its entirety for the City at time of final field inspection. Any items deemed not acceptable shall be reworked to the complete satisfaction of the City.
- The Contractor shall show evidence that the LACC has received all charts, accessories, record drawings and equipment as required before final field observation can occur.
- End of maintenance shall occur only on the written acceptance of the City.

**X. Cleanup and Protection:**

- During the duration of the project, keep adjacent paving and construction clean and work area in an orderly condition.

**Y. Disposal:**

- Remove surplus soil and waste material including excess subsoil, unsuitable soil, trash, and debris and legally dispose of them off the project site.

**Z. Guarantee:**

- The Contractor shall guarantee the entire irrigation system against defects in materials and workmanship for a period (1) year from the date of acceptance of the work. The Contractor shall furnish a Faithful

Performance Bond in the amount of 10% of the amount bid for the installation of the irrigation system to be in force for the one (1) year guarantee period.

- A copy of the guarantee form shall be provided at the time of contract award and shall also be included in the Operations and Maintenance Manual.
- The guarantee form shall be retyped onto the Contractor's letterhead and contain the following information.

#### **GUARANTEE FOR IRRIGATION SYSTEM**

We hereby guarantee that the irrigation system we have furnished and installed is free from defects in materials and workmanship, and the work has been completed in accordance with the Drawings and Specifications. We agree to repair or replace all defects in material or workmanship which may develop during the period of one year from date of acceptance and also to repair or replace all damages resulting from the repair of such defects at no additional cost to the Agency. We shall make such repairs or replacements within a reasonable time, as determined by the Agency, after receipt of written notice. In the event of our failure to make such repairs or replacements within a reasonable time after receipt of written notice from the Agency, we authorize the Agency to proceed to have said repairs or replacements made at our expense, and we will pay the costs and charges therefor upon demand.

- PROJECT:
- LOCATION:
- CONTRACTOR/COMPANY:
- LICENSE NO.:
- ADDRESS:
- PHONE:
- DATE OF FINAL ACCEPTANCE:
- SIGNED:
- DATE:

**END OF SECTION**



## SECTION 02830 – CHAIN LINK FENCING

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, Sections 206-6 and 304-3 apply except as modified herein.

#### A. Work Included:

Furnish and install chain link fencing as shown on the drawings.

### II. MATERIALS

- a. Chain link fabric shall be 2 inch mesh, 9 gauge, knuckled selvage top and bottom, widths in full height of fence up to 10 feet in height.
- b. Posts, rails, bracings and footings shall be sized as noted on drawings.
- c. All fittings shall be heavy duty.
- d. Post caps shall be malleable iron. Post caps for line posts shall be designed for through passage of top rail. Post caps for all other posts shall have curved tops.
- e. Where vinyl coating is specified over chainlink fabric, the gauge of the chainlink fabric shall be 9 gauge without the additional vinyl coating.
- f. Tension bands and bands for securing rail ends shall be mild steel flats, not less than 1/8 inch by 1 inch.
- g. Tension Bars shall be mild steel flats not less than 1/4 inch by 3/4 inch.
- h. Gate hinges shall be heavy duty 360 degree hinges welded to vertical posts after all adjustments have been made.
- i. Gate frames corner joints shall be cut at a 45 degree angle and welded.
- j. Tie wire shall be soft annealed galvanized steel wire No. 9 gauge wire for fastening fabric to posts. No. 11 gauge wire shall be used for fastening fabric to top rails, brace rails and bottom tension wire. No. 10 gauge galvanized wire clips may be used on tension wire.
- k. Tension wire for installation at bottom of fabric shall be no. 6 gauge steel wire.

### III. EXECUTION

All fabric shall be installed on the "playing" side of fencing.

Fasten fabric to line posts with 9 gauge wire ties spaced no more than 16 inches apart.

Posts, rails, and fittings shall be painted to match vinyl covered fabric wherever vinyl coated fencing is specified. Paint with 2 coats of flat enamel paint and primer in accordance with Section 09900 Painting.

**All chainlink fencing installed in turf areas shall have a continuous 9" wide x 6" deep concrete mowstrip centered on the fence posts, unless specifically noted otherwise.**

END OF SECTION

## SECTION 02833 – SAFETY NETTING

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC) apply except as modified herein.

#### A. Work Included:

Furnish and install steel poles, cables, wire and netting and all necessary attachments and connections, as shown on the drawings and/or specified herein these specifications.

#### B. Scope of Work

Furnish all labor, materials, tools and equipment necessary to install, in place all netting poles as indicated on the plans and/or as specified herein. The installation of all new materials shall be performed in strict accordance with the manufacturer's written installation instructions and in accordance with all approved shop drawings.

#### C. Shop Drawings

Shop drawings shall be prepared for all necessary components of the netting system containing all pertinent information regarding the installation. These drawings shall be submitted to the Owner for approval prior to the manufacturing, fabrication and shipment of materials.

Submit drawings for:

1. Installation details for attachments and connections of all netting components.
2. Submit samples of rope and wires
3. Submit an 12" x 12" sample of each netting used for project for approval.
4. Submit a 3" x 3" sample of the pole paint and paint process
5. A letter and specification sheet certifying that the products of this section meet or exceed all specified requirements.

#### D. Quality Assurance

Performance shall be in accordance with the highest standard prevailing in the barrier netting industry. The netting system installation must be performed by a professional netting installation contractor with a minimum of five years, current to this date, proven experience constructing sport netting systems of the size, scope and nature of the work in this specification.

The Netting installation Contractor shall provide Certificates of Insurance with minimum limits of \$1,000,000 per occurrence and \$5,000,000 total aggregate, including any excess or umbrella coverage, for general liability, completed products and automobile. The insurance company must have minimum A+ rating. The steel pole fabricator shall provide Certificates of Insurance for Product Liability with minimum limits of \$10,000,000.

#### E. Schedule

Contractor shall complete all work on the netting poles in accordance to the published project schedule.

#### F. Measurement

Contractor to verify all netting dimension, including lengths and heights.

### II. MATERIALS

#### A. Netting Systems

- 30' Steel Pole Netting System shall align with 8' high chain link fence. Chain link fence attached to safety netting poles as necessary; pole spacing NTE engineering requirements, Homerun Safety Netting, including between fields and over gates
  - Netting to begin 7' above ground level and shall overlap top elevation of fence by minimum of 12". Gate locations to be 9' from ground.

## B. Netting and Rope

### - Vertical Barrier Netting:

#36 x 1-1/2" (3" S0283tretch Mesh) Baseball Barrier Netting 100% DuPont Type 66-728 Knotted Nylon; 381 lb per strand break strength; Dyed Black, Stabilized, and bonded for UV and weather resistance; Netting hung on diamond and manufactured in one "sheet" allowing no escapement with rope borders hand sewn to netting around entire perimeter, vertical riblines @ all poles, and horizontal wind line(s) NTE 25' O.C.; Custom manufactured to as built dimensions and tailored for tight fit on framing wires.

### - Batting Cage Netting:

- Canopy And Stall Tops:  
#42T x 1-3/4" (3-1/2" Stretch Mesh) Baseball Barrier Netting 100% DuPont Type 66-728 Knotted Nylon; 334 lb per strand break strength; Dyed Black, Stabilized, and bonded for UV and weather resistance; Rope borders hand sewn to netting around entire perimeter; Custom manufactured to as built dimensions and tailored for tight fit on framing wires.
- Vertical Side Netting & Stall Dividers:  
#72 x 1-3/4" (3-1/2" Stretch Mesh) Baseball Barrier Netting 100% DuPont Type 66-728 Knotted Nylon; 740 lb per strand break strength; Dyed Black, Stabilized, and bonded for UV and weather resistance; Rope borders hand sewn to netting around entire perimeter; Custom manufactured to as built dimensions and tailored for tight fit on framing wires.

### - Rope/Twine

- Rope:  
Black 5/16" Twisted Nylon Rope for netting borders / perimeters, horizontal wind lines, & vertical rib lines at each pole; 3,600 lb break strength; All rope locations on the net panels shall correspond to the as built net panel suspension and support cables constructed to pole structures; Tying on all netting on batting cage canopy and vertical perimeter netting.
- Twine:  
#42 Twisted Nylon Twine 100% DuPont Type 66-728 Nylon; Dyed Black, stabilized, and bonded for UV and weather resistance; minimum 470 lb break strength; The attachment twine shall continually encompass the netting component and be tied to the rope component via a clove and one half hitch knot +/- 6 inches on center, never to exceed 8 inches on center.

## C. Attachment and Wire

- Netting Attachment – Vertical Barriers, Backstops and Soccer Pavilion:

Finished net panels shall be suspended to all support cables by the rope component via a 5/16" Electro-Galvanized Steel Carabineer with minimum 1,140 lb break strength on 30' AGL Netting Systems and 1/4" Electro-Galvanized Steel Carabineer with minimum 560 lb break strength on all other Netting Systems; The interior of the snap shall encompass the netting / rope and cable components when suspension is completed; The interval between snap to cable attachment points shall not exceed 30" O.C. along all perimeter, horizontal, and vertical rib line ropes.

- Baseball Netting Attachment

Canopy and vertical perimeter netting shall be attached with 5/16" Twisted Nylon Rope with minimum 3,600 lb break strength; the rope shall continually encompass the netting / rope component and be tied to the top rail of chain link fencing on canopy netting and bottom stand-off rails on vertical netting via a clove and one half hitch knot +/- 5 feet on center; Center at collar shall be attached 5/16" Electro-Galvanized Carabineers. Stall tops, pitching machine enclosure and end safety divide netting shall be attached with #72 Braided Nylon Twine; twine shall continually encompass the netting / rope component and be tied to rails of chain link fencing via a clove and one half hitch knot +/-16 inches on center.

- Framing/Support Wire And Down Guys – Vertical Netting Systems

5/16" EHS (Extra High Strength) Guy Strand 1x7 wire with minimum 11,200 lb break strength on 70' AGL System; 1/4" EHS (Extra High Strength) Guy Strand 1x7 wire on with minimum 6,650 lb break strength on all other systems; Pre-Formed Grips, Utility Standard, used to form all eyes on framing wires; Strand-Vise / Automatic Guy Dead End for termination of Down Guys to Anchors.

- Wire

Shall be 3/16" High Strength Aircraft Cable; Eyes formed with ferrules.

#### **D. Pole Line Hardware**

- All pole line hardware to be galvanized, meet ANSI Standards and be RUS Listed; Manufactured by Chance / Hubble or approved equal; Sized Typ. 5/8" Bolts and Fittings; All fittings not to exceed 25' O.C. each pole; 10" Helix x 72" Earth anchors installed end of each run and turns exceeding 20 degrees for down guys; May guy into base of adjacent pole if there is no access or space for earth anchor with engineer approval.
- End / Termination and Corner Poles:
  - 5/8" DAFTB (Double Arming Full Thread Bolt) NTE 25' O.C. with 5/8" thimble eye nut; Top & Bottom with Angle Thimble Eye behind standard thimble eye fitting for attachment of vertical wires; Angle Thimble Eyes on outside of pole tops & center (on 70' system) for running down guys to earth anchor; 5/8" square curved and spring locking washers typical each side of fitting / bolt.
- Mid Span Poles:
  - 5/8" DAFTB (Double Arming Full Thread Bolt) NTE 25' O.C. with 3-Bolt Suspension clamps top, center (on 70' system), and bottom; vertical support roller behind 3-bolt clamp on top and bottom for attachment of vertical wires; 5/8" 1-Bolt Clamp at center fitting, NTE 25' O.C., behind 3-bolt clamp (on 70' system) for securing vertical wire; 5/8" square curved and spring locking washers typical each side of fitting / bolt.
  - All cable attachment points using thimble eye type hardware to minimize pinching and / or kinking of cable; All bolts are through bolt and rated; Pre-Formed Grips used to form all eyes

#### **E. Steel Pole**

- Structurally engineered steel poles and foundations to exceed wind load, exposure class, and soil conditions for project site location. All structural welding and steel fabrication to be performed by an approved certified fabricator. All poles finished with black STRYK© 5388 FACS Flexible Anti-Corrosion System applied in three coats as provided by Coastal Netting Systems or equal.
- 30' AGL Home Run Safety Netting Systems:
  - Refer to plans for pole requirements. Pole spacing shall be so that it fits with the shape of the outfield walls with spacing NTE engineering requirements.

### **III. EXECUTION**

- A. Install all poles, vertical and plumb.

**END OF SECTION**

## SECTION 02860 – PLAY EQUIPMENT

### I. GENERAL

#### A. Work Included:

Furnish and install items of play equipment and resilient surfacing in quantities and in locations as shown on the drawings.

#### B. Shop Drawings or Catalogs:

Shop drawings which show complete details shall be furnished as per Sections 01600 and 01340.

Contractor shall have the manufacturer review the play area plans and mark in ink the minimum dimensions allowed between pieces of play equipment, and between curbs, walls, etc. Any discrepancies noted shall be brought to the attention of the Landscape Architect immediately.

#### C. Location Inspection:

No playground equipment or apparatus or foundations for same shall be placed until location stakes have been verified by the Agency Representative at a regularly scheduled project meeting as per Section 01310 of these specifications.

### II. PRODUCTS

#### A. Play Equipment:

As shown on the drawings, or approved equals.

### III. EXECUTION

#### A. Installation:

All items shall be installed according to the manufacturer's written instructions which will be furnished with the equipment.

Equivalent methods of fabrication and installation differing from those employed by the manufacturer specified, may be accepted providing all variations are clearly shown on shop drawings or in catalogs which show complete details, and same are approved by the Consultant prior to fabrication or placing order for delivery.

#### B. Concrete Foundations:

All equipment specified shall be set in concrete footings which shall be the size recommended in writing on printed matter furnished by the manufacturer or as shown on the drawings. All footings shall be flush with the sub-grade. Contractor shall extend any post or pipe at no additional cost to the City so that the equipment is installed at the Manufacturer's designated elevations. Method of extension shall be equal to or better than Manufacturer's material on equipment being installed. Remove all burrs on welds and paint according to Standard Specification, Section 210-3.5.3.

**END OF SECTION**

## SECTION 02870 – SITE FURNISHINGS

### I. GENERAL

#### A. Scope of Work:

Furnishing and installing team benches.  
Furnishing and installing benches.  
Furnishing and installing drinking fountains.  
Furnishing and installing bike racks.  
Furnishing and installing trash containers.  
Furnishing and installing picnic tables.  
Furnishing and installing barbecues.  
Furnishing and installing spectator seating.  
Furnishing and installing flagpole.  
Furnishings for Baseball Fields.  
Furnishing and installing Spectator Seating (Bleachers)

#### B. Work not Included:

Play equipment.  
Masonry.

### II. PRODUCTS

#### A. Benches:

As shown on drawings or approved equal

#### B. Drinking Fountain:

As shown on drawings or approved equal  
Install units according to manufacturer's specifications. Install pressure regulator on all water lines to drinking fountains where pressure exceeds 60 psi, set regulator at 50 psi.

#### C. Bike Racks:

As shown on drawings or approved equal.

#### D. Litter Receptacles:

BY Victor Stanley, Model DYN-36  
Mount receptacles to concrete slab, when shown in dg area.  
Final locations to be marked and approved prior to installation

#### E. Picnic Tables:

As shown on drawings or approved equal.

#### F. Flagpole:

As shown on drawings or approved equal.

#### G. Team Benches:

As shown on drawings or approved equal.

#### H. Spectator Seating:

As shown on drawings or approved equal

#### I. Barbecues:

As shown on drawings or approved equal.

#### J. Baseball Field Equipment:

Pitching Rubber - Four-Way Pitching Rubber 6" x 24" with aluminum interior tube 27 pounds Hollywood Model # BBPB or approved equal. Refer to drawings.

Removable Pitching Rubber – Enduro Pro Removable Rubber Official 6"x24". Model # TB-K10378 or approved equal. Refer to drawings.

Homeplate - Bolco Model # 310-SHP or approved equal. Stanchion mounted professional homeplate with standard ground anchor and anchor plug included.  
Refer to drawings.

Bases – Bolco Model # 175-MLB with three bases/anchors and plugs or equal (800) 959-1844.

Double First Base – Bolco. Model #110-DBL or equal (800) 959-1844.

Bat Rack - Shall be plan recommended manufacturer or approved equal. Refer to drawings.

### **III. INSTALLATION**

#### **A. General:**

Installation shall be in the locations shown on the drawings after approval of precise location by Consultant. Install according to manufacturer's written instructions or according to approved shop drawings. Install all metal supports and post in footings prior to installing any concrete slabs.  
Any item not imbedded shall be surface mounted to a concrete slab using minimum 3/8" x 3" long lag screws in expansion shields.

#### **B. Pre-Cast Concrete, Bollards, Trash Receptacles, Etc.:**

Centering: All wood centering required for the setting of precast concrete work under this contract will be furnished and erected by the General Contractor.

Setting: The precast concrete shall be set accurately, true to line and level by competent precast concrete setters, with full flush joints, filling all anchor holes, welding or bolting as required. Heavy projecting courses to be propped up until mortar has set and the walls above same have been set. All beds and vertical joints to be of maximum width of 1/4 inch. Mortar to be raked out to a depth of 2 inch from the face to allow for pointing.

Backing: Space between back of the cast stone to be filled with semi-dry, coarse sand and cement grout - 1 inch minimum.

Protection: Precast concrete shall be properly protected from damage by means of boards or other suitable covering where necessary until completion of the work. This Contractor shall cooperate with the Carpentry Contractor, who will furnish and erect the necessary protection for this work.

Cleaning: The face of all precast concrete shall be thoroughly cleaned upon completion with the weak acid solution applied vigorously with fiber brushes and then drenched with clean water.

Pointing: All face joints shall be brushed out clean 2 inch in depth and after a thorough wetting of the face shall be pointed flush with mortar composed of one part stainless cement to two parts clean, fine white sand and sufficient cold lime putty to make a mixture as stiff as can be worked.

Caulking: When required joints shall be caulked with sealant compound according to manufacturer's directions, backing to be approved compressible filler. Conform to Section "Caulking", including guarantee.

Wood Products: All non-pressure treated wood products listed under the section are to be sealed with a clear penetrating sealant to help prevent moisture damage to the wood product. Phenoseal liquid waterproofing or similar approved shall be used. Apply per manufacturer's specifications.

Concrete Footings: All site furnishings which are embedded in the ground shall have a 12" x 18" minimum concrete footing. If the manufacturer has a specified method of installation, it shall take precedence over the above footing.

All inground mount furniture shall be installed on a min. 4" concrete pad, width and length to match furnishing. Install baseball bleachers per manuf. recommendations/instructions.

**END OF SECTION**

## SECTION 02900 – LANDSCAPE PLANTING

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, Sections 212 and 308 apply except as modified herein.

#### A. Work Included in this Section:

Finish grading (fine).  
Weed abatement.  
Soil preparation.  
Tree supports, trunk protectors, and root barriers.  
Furnishing plants and planting.  
Fertilizer, soil amendment.  
Watering.  
Project maintenance period.  
Soils analysis.

#### B. Work not Included in this Section:

Rough grading.  
Finish grading.  
Irrigation system.

#### C. Approvals:

All sprinkler work shall be inspected and approved before starting any work of this section, except that specimen trees shall be installed prior to beginning sprinkler work.

All turf areas shall be planted and all landscape planting shall be installed and approved prior to the commencement of the plant establishment period.

### II. MATERIALS

#### A. Landscape Finish Grading:

Site topsoil material shall be used.

#### B. Tree Supports:

Stakes for trees shall be round, of Lodge Pole pine, made from the entire bole of the tree with bark removed and completely treated in a solution of pentachlorophenol. They shall be at least 2" or 2 2" in diameter, conically pointed at one end. 10" long tapered point and chamfered at the other end.

Ties shall be "Wonder Tree-Tie" or equal, black in color, install according to manufacturer's specifications.

#### C. Tree Trunk Protector:

Contractor shall supply and install an approved tree trunk protector device for trees in turf area only, equal to "Tree Boot".

#### D. Root Barrier:

Root barrier shall be installed on all planted trees within 5'-0" of concrete or asphalt paving. Contractor to supply and install "deep root" barrier by Deep Root Corp.:(415) 437-9700 or Shawtown Root Barrier by NDS:

(800) 726-1994 or approved equal with a minimum depth of 24". Where root barriers parallel curb face or concrete pavement, the barrier shall extend 5' on either side of the tree trunk 10' in length



**E. Plant Materials:**

All plant material shall meet requirements in the Standard Specifications, Section 212-1.4. Plant list is on landscape plan. The planting plans are only accurate for planting location and quantities. The Contractor shall verify all quantities by plan check. The planting legend is accurate only for plant size. In the event of a discrepancy, the Contractor shall adjust the quantities of the smallest plant size specified in the legend to conform with the quantities required by the plan.

Plants not approved are to be removed from site immediately and replaced with suitable plants.

Inspection and approval of specimens required before delivery to site; all others on delivery. Agency may reject entire lot of plants represented by defective samples. Random samples will be inspected for root condition.

**F. Soil Amendments and Fertilizer for Bid Purposes:**

All turf and groundcover areas shall receive soil amendments per soil analysis recommendations. See specs. (Use the following quantity per 1,000 sq. ft. for bidding purposes).

- a. 6 cubic yards nitrogen stabilized organic amendments.
  - b. 15 lbs. commercial fertilizer (6-20-20 either incorporated into the soil or incorporated into the hydromulch slurry as specified).
  - c. 20 lbs. of gypsum
- or
- d. 6 cubic yards nitrogen stabilized organic amendments
  - e. 200 pounds Gro-Power Plus (5-3-1) incorporated into the soil and 12 pounds Gro-Power Plus (5-3-1) incorporated into the hydromulch slurry as specified.

**G. Turf Seed Mixes:**

All seed shall be fresh, clean, new crop seed, premixed by mechanical mixer to proportions specified. Minimum purity and germination as follows:

<u>Turf Mix</u>	<u>by Weight</u>	<u>Proportion</u>	
		<u>Purity</u>	<u>Germination</u>
Ryegrass (50% Pennfine, 50% Derby by count)	20%	95%	90%
Bluegrass (50% Rugby, 50% Parade by count)	40%	98%	80%
Bermuda grass* (certified Arizona Common)	40%	98%	85%

- Hulled seed shall be used if planted April through September. Unhulled seed shall be used if planted October through March.
- Seeding rate: 350 pounds per acre. (8 pounds per 1000 square feet).

**H. Sod:**

Sod shall be as called out on the drawings. Prior to delivery to the site, the Contractor shall submit a square yard sample of proposed sod with the name of the supplier to the landscape architect for review and approval.

**I. Native Plant Seed Mixes:**

All seed shall be fresh, new crop seed, premixed by mechanical mixer to proportions specified.

<u>Botanical Name</u>	<u>Common Name</u>	<u>Pounds per Acre</u>	<u>Seed Mix</u>
Baccharis pilularis	Dwarf Coyote Bush	8	A&B
Cistus salvifolius	Sageleaf Rockrose	3	A
Heteromeles arbutifolia	Toyon	2	A
Atriplex semibaccata	Australian Salt Bush	5	B
Low Profile Wildflower Mix by Clyde Robin Seed Co.		4	A
Low Growing Perennial Wildflowers by Environmental Seed Producers Inc.		3	B

- California Low-Growing Perennial Wildflowers by Environmental Seed Producers, Inc., or equal.
- California Wildflower Mix No. 11201 by Clyde Robin Seed Co., or equal.

**J. Commercial Fertilizers:**

Planting Tablets. Tightly compressed, long-lasting, slow-release fertilizer tablets weighing 21 grams, with a potential acidity of not more than 5% by weight and having an analysis of 20-10-5 derived from the sources listed in the following guaranteed analysis:

Guaranteed Analysis

Total Nitrogen.....	20.0%
• Derived from urea-formaldehyde.	
• 7.0% water soluble Nitrogen, 13.0% water insoluble Nitrogen	
Available Phosphoric Acid.....	10.0%
• Derived from calcium phosphate.	
Soluble Potash.....	5.0%
Combined Calcium.....	2.6%
• Derived from calcium phosphates.	
Combined Sulfur.....	1.6%
• Derived from ferrous and potassium sulfates.	
Iron (expressed as elemental Fe).....	35%
• Derived from ferrous sulfate.	
Potential Acidity: 5% or 100 lbs. Calcium Equivalent per ton	

- OR Planting Tablets. Gro-Power 7 gram tablets, or approved equal, tightly compressed, long-lasting, slow-release fertilizer tablets weighing 7 grams and having an analysis of 12-8-8 derived from the sources listed in the following guaranteed analysis:  
(Available from Gro-Power 909/393-3744).

Guaranteed Analysis

Total Nitrogen.....	12.0%
Available Phosphoric Acid.....	8.0%
Soluble Potash.....	8.0%
Sulphur.....	3.5%
Iron.....	2.0%
Manganese.....	.05%
Zinc.....	.05%
Humic acids.....	4.0%

- Fertilizer 6-20-20 XB (for turf & groundcover areas): Premium high performance pre-plant fertilizer compound having an N-P-K ratio of 6-20-20, and shall be derived from the sources listed in the following analysis in a high quality homogeneous pellet.

Guaranteed Analysis

Total Nitrogen.....	6.0%
Ammoniacal Nitrogen	
Available Phosphoric Acid.....	20.0%
Soluble Potash.....	20.0%
Sulfur .....	5.5%
Iron (Fe) expressed as Elemental.....	1.5%
Potential Zinc.....	0.75%

- OR Fertilizer 12-8-8 (for turf & groundcover areas): Gro-Power Controlled Release (3 to 4 month formulation) or approved equal. Fertilizer shall be a long-lasting, slow-release fertilizer compound having an N-P-K ratio of 12-8-8 and shall be derived from the sources listed in the following analysis:

Guaranteed Analysis

Total Nitrogen.....	12.0%
• 9.0% Slow release Nitrogen.	
• 3.0% Urea Nitrogen	
Available Phosphoric Acid.....	8.0%
• Derived from Triple Super Phosphate.	
Soluble Potash.....	8.0%
• Derived from Compost and muriate of Potash.	
Humus (composed organic and mineral matter).....	25.0%
Humic Acid (derived from compost) .....	5.0%
Sulfur .....	7.0%
Iron (Fe) expressed as Elemental.....	2.0%
Manganese (expressed as elemental Mn) derived from Manganese Sulfate.....	.05%
Zinc (expressed as elemental Zn) derived from Zinc Sulfate.....	.05%

Fertilizer 12-12-12 (for Plant Backfill): Fertilizer shall be rapidly soluble prills containing equal amounts of nitrogen, phosphorus, and potash plus sulfur and calcium and derived from the following sources:

Guaranteed Analysis

Total Nitrogen.....	12.0%
As Ammoniacal derived	
Available Phosphoric Acid.....	12.0%
Soluble Potash.....	12.0%
Sulfur .....	15.0%

OR Fertilizer/soil conditioner 5-3-1 (for Plant Backfill): Gro-Power Plus or approved equal. Fertilizer/soil conditioner shall be a humus base fertilizer/soil conditioner derived from the following sources:

Guaranteed Analysis

Total Nitrogen.....	5.0%
Available Phosphoric Acid.....	3.0%
Soluble Potash.....	1.0%
Humus.....	50.0%
Humic Acids.....	15.0%
Iron.....	1.0%
Manganese.....	.05%
Zinc.....	.05%
Soil Penetrant.....	1.25%
Bacteria (common soil and airborne organisms) yeast and mold.....	60,000 per 100 grams

Fertilizer 16-6-8: (for Maintenance) Fertilizer shall be a fertilizer compound having an N-P-K ratio of 16-6-8, and shall be derived from the sources listed in the following analysis in a high quality homogeneous pellet.

Guaranteed Analysis

Total Nitrogen.....	16.0%
• Ammoniacal Nitrogen	
Available Phosphoric Acid.....	6.0%
Soluble Potash.....	8.0%
Sulfur .....	16.0%
Iron (Fe) expressed as Elemental.....	1.5%
Potential Zinc.....	0.1%

Ammonium Sulfate: Conforming to the requirements of the Agricultural Code of the State of California.

Iron Sulfate: Ferric sulfate or ferrous sulfate in pelleted or granular form containing not less than 18.5% iron expressed as metallic iron, and shall be registered as an agricultural mineral with the State Department of Agriculture in compliance with Article 2, "Fertilizing Materials", Section 1030 of the Agricultural Code.

Soil Amendment: Standard Specifications Section 212-1.2.4 shall apply. Soil amendment shall be an organic wood base product, Type I, composted Redwood or Cedar only.

**K. Hydromulch Materials:**

- Water. General precautions should be observed when drawing water from sources other than main pressure. The use of filters may be required when directed. Such water must be free of impurities.
- Seed. Turf and native plant seed as previously specified.
- Wood Fiber Mulch. Fiber shall be produced from cellulose such as wood pulp or similar organic material and shall be of such character that it will disperse into a uniform slurry when mixed with water. The fiber shall be of such character that when used in the applied mixture an absorptive or porous mat, but not a membrane, will result on the surface of the ground. Materials which inhibit germination or growth shall not be present in the mixture.
- Fertilizer 6-20-20 XB pellet form. Add to slurry mix at 650 lbs/acre.

OR

- Fertilizer Gro-Power Plus and Gro-Power Controlled Release.
- For turf and planting areas with amended soil: add Gro-Power Plus to slurry mix at 500 lbs/acre.
- For slope hydroseed areas without amended soil: Add Gro-Power plus at 1000 lbs/acre and Gro-Power controlled release at 300 lbs/acre to slurry mix.
- Binding Agent. Dry powder organic concentrate. Ecology Controls M-Binder or equal. Available from S & S Seeds Inc. Phone (805) 684-0436.

**L. Jute Mesh:**

Jute mesh shall be by Amoco Construction Fabric or equal. Available through Drainage Products (800-225-0797)

**M. Shredded Wood Mulch:**

Shredded Wood Mulch shall be a minimum of 1" thickness in all shrub and groundcover areas. Type: Forest Floor 0-2, Supplied by: Aguinaga Fertilization Products Phone 949-786-9558. or equal. Submit sample to landscape architect for approval prior to installation.

**III. EXECUTION**

**A. Agronomic Soils Tests Prior to Amending Soil:**

After completion of fine grading and prior to soil preparation, the Agency shall obtain agronomic soils tests for all planting and turf areas. A minimum of one sample per two acres of lawn shall be required. Tests shall be performed by an approved agronomic soils testing laboratory and shall include a fertility and suitability analysis with written recommendations for soil amendment, fertilizer, and chemical conditioner application rates for soil preparation, auger hole requirements, and maintenance and post-maintenance fertilization program for all areas.

The agronomic soils report recommendations shall take precedence over the minimum amendment and fertilizer application rates specified herein or on the plans only when they exceed the specified minimums. Additional materials required by the soils report shall be paid for by Change Order.

**B. Agronomic Soil Test After Amending Soil:**

After the soil amendment procedure has been completed and prior to commencement of planting the Agency Representative will take one sample per two acres of turf of amended soil.

The Agency Representative shall deliver the samples to an approved agronomic soils testing laboratory for analysis and report. Costs of analysis and report shall be borne by the Contractor.

If any deficiencies are found, the elements required to be added to the planting areas to comply with these specifications shall be borne by the Agency. The additional soil testing costs to insure conformance will be borne by the Contractor.

After certification by the laboratory that amendment procedures have been complied with, the Contractor may proceed with planting.

Permissible limits of analytical deviation are as follows:

<u>Items</u>	<u>Permissible Limits</u>
Percentage organic matter	Plus or minus 20%
Mineral nutrients:	
available nitrate plus ammoniac nitrogen	Plus or minus 20%
available phosphate phosphorus	Plus or minus 20%
available potassium	Plus or minus 20%

### **C. Finish Grading:**

Before any planting operations start in any area, all trash and deleterious materials on the surface of the ground shall be removed and disposed of. After completion of fine grading and prior to soil preparation, the Contractor

shall adhere to the Agronomic Soils Test and Report recommendations as required, except for the minimums specified herein.

Turf areas shall be graded so that after cultivation, amendment and settlement, the soil shall be 1" below the top of curb or paving. All flow lines shall be maintained to allow for free flow of surface water. Displaced material which interferes with drainage shall be removed and placed as directed. Low spots and pockets shall be graded to drain properly.

All turf planting areas shall be cultivated until the soil is brought to a loose friable condition to a depth of 6". Remove all rocks and debris 1" or larger in size. Evenly distribute soil amendments, and thoroughly incorporate into upper 6" of soil with mechanical tiller.

or

All turf areas and planting areas (excluding hydroseeded slope areas) shall be cultivated until the soil is brought to a loose friable condition to a depth of 6". Remove all rocks 1" or larger in size and debris. Evenly distribute soil amendments at six (6) cubic yards per 1,000 sq. ft. and Gro-Power Plus (or approved equal) at 200 lbs./1,000 sq. ft. and thoroughly incorporate into upper 6" of soil with mechanical tiller.

All planting areas shall be finish graded per Standard Specifications, Section 308-2.4. Finish grades shall be so graded that required tolerances are met after settlement at the end of the project maintenance period.

### **D. Weed Abatement:**

All weed growth in planting areas shall be removed. Common Bermuda grass found growing in areas not designated to be planted with Bermuda grass, shall be killed with an approved herbicide or fumigant with materials approved by the Agency.

Contractor shall irrigate for a minimum of twenty-one (21) days all banks and other areas that will be hydroseeded with plants other than turf to germinate existing weeds. Weeds shall be removed or killed by a contact herbicide to provide a complete kill. Soil surface shall be free of excessive vegetative material so that hydromulch is in contact with the soil surface.

1. All trees shall be safely loaded and transported, taking care not to damage any part of the tree to soil ball. All consideration shall be given in the selection of the largest possible crane to facilitate loading, unloading, and setting. This consideration shall vary based on any given site situation and is solely the liability and responsibility of the Contractor.

All excavated palm planting holes shall have vertical sides with roughened surfaces and shall be of size that is twice the diameter and two (2) feet minimum to four (4) feet maximum deeper in the ground than the depth of the palm rootball. The palm should be centered in the planting hole and in alignment with any other palms. The palm shall be set plumb and held rigidly in position until the backfill has been tamped firmly around the rootball. The top of the rootball should be equal to the existing or proposed soil grade. The backfill mix for palms shall be 100% washed concrete sand. Newly planted palms shall be immediately watered thoroughly and protected from compaction.

**E. Tree Supports:**

All trees shall be supported at time of planting as called for on planting plan.

**F. Planting:**

All trees shall be planted, staked and tied as noted on drawings and in accord with U.C. Agricultural Extension Service Bulletin AXT-311. Plants shall be planted where shown on plans or as directed by Agency Representative.

Trees, shrubs and ground covers shall be planted before seeding.

Plant pits for container plants shall have vertical sides and shall be the size noted on drawings.

Backfill material for plant pits shall be a mixture as noted below. The materials shall be thoroughly mixed to the bottom of the pit so that they are evenly distributed and without clods or lumps. Backfill shall be so placed in the pits that the plant will be at its natural growing height and the backfill material will be level one inch below surrounding soil after settlement.

Amended backfill for plant holes shall be:

- 6 parts by volume on site soil.
- 4 parts by volume organic amendment.
- 2 lbs. iron sulfate per cubic yard.
- 1 lb. 12-12-12 commercial fertilizer per cubic yard or 17 lb. 5-3-1 Gro-Power).

Install 21 gram planting tablets as follows:

Size

1 gallon → 1 tablet

5 gallon → 3 tablets

15 gallon → 5 tablets

24 inch box specimen and larger

- Use one tablet for each 2 inch of tree trunk diameter or for each one foot of height. Sink tablets 6 to 8 inches deep evenly spaced around the drip line.

or

Install 5 gram planting tablets as follows:

Size

1 gallon → 3 tablets

5 gallon → 8 tablets

15 gallon → 15 tablets

24 inch box specimen and larger

- Use 4 tablets for each 2" of tree trunk diameter or for each one foot of height. Sink tablets 6 to 8 inches deep evenly spaced around the drip line.

Position the plant in the hole and backfill no higher than halfway up the rootball. Place the recommended number of tablets evenly around the perimeter of, and immediately adjacent to, the root ball at a depth which is between the middle and the bottom of the rootball. Complete the backfilling, tamp and water.

Before plants are transported to the planting area, they shall be properly pruned by thinning out to reduce damage by wind and to protect lateral growth.

No plants shall be transported to the planting area that are not thoroughly wet throughout the ball of earth surrounding the roots. Plants should not be allowed to dry out, nor shall any roots be exposed to the air except during the act of placement. Any plants that in the opinion of the Agency Representative are dry or in a wilted condition when delivered or thereafter, whether in place or not, will not be accepted and shall be replaced at the Contractor's expense.

**G. Turf Installation:**

Grade smooth all surfaces to be seeded. Soil surface shall be 1" below adjacent walks after settling. Roll lightly and fill in all soil depressions. Under mechanical seeding method incorporate 15 lbs./1,000 sq. ft. 6-20-20 in the upper 6" of soil.

or

Incorporate 200 lbs./1000 sq. ft. Gro-Power Plus 5-3-1 in the upper 6" of soil.

Soil shall be level, smooth and moist before seeding.

The seed bed shall be inspected by the Agency Representative to determine its suitability prior to seeding. The Contractor shall obtain such approval before seeding grass. No seeding shall be performed until all other construction operations have been completed, except by authorization of the Agency Representative.

Seed bed mulch will be required according to the seeding method selected by the Contractor, which shall be approved by the Agency Representative.

**H. Sodding:**

Sod shall be as specified on plan and shall be installed within 24 hours after harvesting.

Sod area shall be rolled lightly and watered to a depth of 6" the day prior to installing sod. Fill or regrade any areas as necessary. Lightly water again just prior to laying sod.

Sod shall be laid in staggered pattern, with tight joints and in the same direction each time. On slopes, install sod from the bottom up. Protect the newly laid sod by walking on boards as the installer moves upward, sod on slopes shall be pinned down with wooden pegs.

Roll sod with adequately weighted roller to smooth out sod bed.

Keep sod thoroughly moist to a depth of 6" until established. No foot traffic should be allowed for 2 to 3 weeks after installation.

**I. Hydromulch:**

(If selected, 6-20-20 shall be incorporated in the slurry in lieu of soil incorporation in turf areas.)

Mixing of Hydromulch Slurry. Mixing shall be performed in a tank with a built-in continuous agitation and recirculation system of sufficient operating capacity to produce a homogeneous slurry of fiber, M-binder, seed, fertilizer and water in the designated unit proportions:

- Fiber
  - Minimum 1,500 lbs. per acre, 2000 lbs. per acre on 5:1 or greater slopes.
- Seed
  - As specified.
- M-Binder
  - 100 lbs. per acre, 150 lbs. per acre on slopes.
- Fertilizer
  - As specified.
- Water
  - 3,000 gals. per acre

On slopes composed of sandy soils and slope areas subject to erosion, apply the material in two applications as follows:

First application:

- 500 lbs. fiber, 50 lbs. M-binder, seed and water as required.

Second application:

- 1500 lbs. fiber, 100 lbs. M-binder, and water as required.

With agitation system operating at part speed, water shall be added to the tank, good recirculation shall be established. Materials shall be added in such a manner that they are uniformly blended into the mixture in the following sequence:

When tank is 1/3 filled with water:

- Add binding agent - 2 acre requirement.
- Add 3 - 50 pound bales of fiber.
- Add seed - 2 acre requirement.
- Add NPK fertilizer - 2 acre requirement.

Agitate mixture at full speed when the tank is half-filled with water.

- Add remainder fiber requirement before tank is  $\frac{3}{4}$  full.
- Slurry distribution should begin immediately.

Area to be hydromulched shall be moistened to a depth of six inches just prior to application.

Application: Hydromulch slurry shall be applied under high pressure evenly and result in a uniform coat on all areas to be treated. Care shall be exercised to assure that plants in place are not subjected to the direct force of an application. Slurry shall be immediately removed from walks, structures, etc., that are inadvertently sprayed.

Mulch. Under any method other than hydromulching, 1/4 inch of mulch shall be spread over all seeded areas.

#### **J. Watering:**

Apply water to all planted areas during operations and thereafter, until acceptance of work.

Plants which cannot be watered efficiently with the existing water system shall be watered by means of a hose.

Immediately after planting, apply water to each tree and shrub. Apply water in a moderate stream in the planting hole until the material about the roots is completely saturated from the bottom of the hole to the top of the ground.

Apply water in sufficient quantities and as often as seasonal conditions require to keep the planted areas wet at all times, well below the root system of grass and plants.

All ground cover planting shall be immediately sprinkled to avoid drying out until the entire planted area is thoroughly watered and the soil soaked to the full depth of each plant hole.

All hydromulch and seeds should be kept damp at all times and irrigation should be adjusted accordingly. This normally would involve four to six watering periods daily; each watering period (ON) regulated to just dampen the mulch and seed, without creating runoff. Intervals between irrigations (OFF) should be judged by the length of the time mulch and seeds remain damp. Once mulch and seeds begin to dry out, the watering (ON) should be repeated.

#### **K. Turf Mowing:**

The turf shall be edged whenever necessary. The turf shall be mowed with a sharp mower before it exceeds 2" in height. The turf will be cut to not less than 1 2" and, during the period of maintenance, the turf will not be allowed to exceed 2" in height. Hybrid bermuda turf shall be cut using a reel type mower. A rotary type mower is not acceptable.

#### **L. Project Maintenance:**

Project maintenance consists of a minimum 30 day plant establishment period and a subsequent 60 day maintenance period, constituting a total minimum 90 day maintenance period.

The plant establishment period commences when all plants and all turf (grass) has been planted. The establishment period will continue until all turf areas have been mowed to the specified height at least once, but not less than 30 days.



Water turf until acceptance of work. The areas shall be kept moist, but not glistening wet, until time for the first cutting of turf. After first cutting, water turf to maintain a thriving condition. Any areas where the seeds fail to germinate satisfactorily shall be immediately reseeded. The Contractor shall maintain the turf areas until an even, close stand of turf is obtained.

Where sod has been installed, the Contractor shall topdress with Agency approved silica sand and roll as necessary to fill seams between sod strips and/or low points in order to produce a firm even stand of turf. The contractor shall repeat this process as necessary to achieve a uniform turf condition to the satisfaction of the Agency representative.

The establishment period shall be extended beyond the 30 day minimum at no cost to the City until all turf areas have been mowed to the specified height and a close stand of turf is attained to the satisfaction of the Agency Representative.

Project maintenance work shall commence after the Agency Representative has approved plant establishment and shall continue for 60 additional days.

Project maintenance work shall consist of applying water, fertilizing all areas, weeding, caring for plants, sweeping walks, litter pickup, and performing all general project maintenance.

The Contractor shall be responsible for detecting nutrient deficiencies and turf diseases and pests as soon as their presence is manifested. He shall take immediate action to identify the problem and shall immediately apply remedies. If the above and following conditions are not complied with, the Contractor shall re-plant the grass and maintain the turf until a healthy, mature turf is re-established, and shall maintain that area for an additional 60 days at no additional cost to the Owner.

During the project maintenance period, all plants and planted areas shall be kept well watered and kept weed free at all times. Weeds, Dallas and Johnson grass, and Bermuda grass shall be removed and disposed of (except Bermuda grass will be allowed to remain in turf areas). Provide special attention for watering slopes planted to lawn on the windward and/or sunny side so that turf will adequately be watered at all times.

Immediately after the second cutting of turf, where trees occur in turf areas, the turf shall be turned under and neatly edged 18" away from the plants. The turf edges shall be maintained in a neat condition until acceptance of the work.

Workmen shall not be allowed to walk on turf areas unnecessarily before, during or after seeding operations. Turf areas that have been damaged or compacted shall be recultivated and reseeded at the Contractor's expense.

The Contractor shall provide supplemental feedings of fertilizer as required by the agronomic soils test to maintain a healthy turf and all other plantings including slope areas. Minimum requirement: 16-6-8 at 6.2 lbs. per 1000 s.f. 35 days after initial planting, and just prior to final inspection.

In order to carry out the project maintenance work the Contractor shall maintain a sufficient number of personnel and adequate equipment to perform the work herein specified from the time any planting is done until the end of the project maintenance period or until the final approval.

The Contractor may be relieved from maintenance work required in these special provisions when the project maintenance work has been satisfactorily completed. Damage to planting areas shall be repaired immediately.

Contractor shall continue to pick up rocks that surface and are 1" or greater in diameter.

**M. Replacement of Plants:**

All plants that show signs of failure to grow at any time during the life of the contract, or those plants so injured or damaged as to render them unsuitable for the purpose intended, shall be immediately replaced in kind at the expense of the Contractor.

**N. Tree Guarantee:**

The Contractor shall guarantee all trees from disease or death and injury resulting from improper planting for a period of one year after final acceptance of the project.

The Contractor shall replace at no expense to the Agency as soon as possible plants that are dead or not in a vigorous, healthy growing condition. Replacement shall be of the same kind and size as originally specified and shall be planted as described on the drawings and in the specifications.

The Contractor shall not be held liable for loss of plant materials during the guarantee period due to lack of care, vandalism or accidental causes.

**O. Inspections:**

A written notice requesting an inspection should be submitted to the Agency Representative at least ten (10) days prior to the anticipated date. Prior to this inspection, the site must be thoroughly cleaned up and all excess material and debris removed.

The following inspections are required:

Prior to the start of the 90 calendar day plant establishment and project maintenance period, the Contractor will be required to have a complete inspection and approval of all landscape construction items.

At 30th calendar day.

At 60th calendar day.

At completion of the maintenance period.

**P. Certification:**

Written certifications required which are to be submitted to the Agency Representative upon delivery to the job site include:

- Quantity of commercial fertilizer used.
- Quantity of soil amendments.
- Quantity of seed.
- Quantity of iron sulfate.
- Quantity of soil sulfur.
- Quantity of agricultural gypsum.
- Quantity of hydromulch materials.
- Quantity of sod.
- Quantity of shredded wood mulch.

**END OF SECTION**

## SECTION 03100 – CONCRETE FORMWORK

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC) latest edition apply except as modified herein.

#### A. Work Included in this Section:

Deliver and store all material in such a manner as to protect it from damage and deterioration.

Design, construction, and safety of all formwork shoring and reshoring shall be the complete responsibility of the Contractor.

It shall be the responsibility of the Contractor to insure that all applicable safety laws are strictly enforced and to maintain a safe construction project.

#### B. Related Work Specified Elsewhere:

Concrete reinforcement: Section 03200

Cast-in-place concrete: Section 03300

Rough Carpentry: Section 06100

#### C. Quality Assurance:

The following codes and standards apply to, and form a part of, this section, where applicable:

Product Standard PS 1-74 for Softwood Plywood.

American Concrete Institute Standard Recommended Practice for Concrete Formwork, ACI 347.

### II. PRODUCTS

#### A. Materials:

Where finish concrete is below grade or scheduled to be plastered, plywood or sawed lumber formwork shall be constructed of substantial material as selected by the Contractor.

Where finished concrete is above grade and scheduled to be exposed, use Plyform Class I and II B-B, EXT-DFPA or approved equal.

Form coating shall be a non-grain-raising and non-staining type that will not leave residual matter on the surface of the concrete or adversely affect bonding to concrete of paint, plaster, or other applied materials.

### III. EXECUTION

#### A. Erection:

All concrete above grade shall be cast-in-plywood forms.

All concrete below grade shall be cast-in-plywood or sawed lumber forms.

Concrete below grade may be poured directly against earth in open trenches where specifically approved by the Structural Engineer.

All forms shall be constructed true to line and level, sufficiently tight to prevent leakage of mortar, and shall conform exactly to the dimensions of the finished concrete as shown on the drawings.

In walls and columns over 8' high, clean out panels shall be provided at the bottom of forms to facilitate cleaning prior to pour.

Where studs in formwork are spaced not over 12" o.c., 5/8" minimum plywood shall be used. Where studs are spaced not over 16" o.c., 3/4" minimum plywood shall be used.

For cheek walls Contractor shall form and pour all stairs first. Cheek walls shall be formed and poured after acceptance of the step construction. Cheek walls shall be a minimum of 10" wide.

Place long dimension of plywood sheets perpendicular to direction of studs.

**B. Removal of Forms:**

Do not disturb or remove forms until the concrete has developed sufficient strength to safely sustain its own weight and the superimposed loads above. After concrete is placed, the following minimum time periods shall elapse before the removal of forms:

	<u>Forms</u>	<u>Shores</u>
Sides of walls and edges of slabs and footings.	3 days	5 days

**END OF SECTION**

## SECTION 03200 – CONCRETE REINFORCEMENT

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC) latest edition apply except as modified herein.

#### A. Work Included in this Section:

Bundle reinforcement and tag with suitable identification to facilitate sorting and placing. Store all reinforcement to protect from rust, oil, dirt, and splash.

#### B. Related Work Specified Elsewhere:

Concrete formwork: Section 03100 Cast-in-Place Concrete: Section 03300 Miscellaneous  
Metals: Section 05010

#### C. Quality Assurance:

Material quality standards and testing procedures shall be in accordance with the American Society for Testing Materials, hereinafter referred to as "ASTM". All ASTM standards and testing procedures shall be the latest requirements.

Fabrication and installation of reinforcing steel shall be in conformance with the Manual of Standard Practice for Detailing Reinforced Concrete Structures ACI 315.

#### Tests and Inspections:

Tests and inspections shall be made by a testing laboratory approved by the Structural Engineer.

The cost of sampling and testing required by these Specifications shall be borne by the Owner.

Sampling of reinforcing steel shall be done by a representative of the testing laboratory.

One tensile and one bend test shall be made of each ten tons or fraction thereof for each size reinforcing steel bar #5 and larger. These tests shall be performed only if required by the Test and Inspection Request Form prepared by the Structural Engineer.

Prepare and distribute copies of test reports to City Engineer.

Additional tests shall be made when and as directed by the Structural Engineer. Costs of test shall be borne by the Contractor.

#### D. Submittals:

The Contractor is not required to submit placing drawings for approval. All reinforcing will be checked in its installed position.

### II. PRODUCTS

#### A. Materials:

Reinforcing steel bars shall be of the Intermediate Grade conforming to ASTM A615, Grade 40, and shall be rolled from new billets. All bars shall be identified by mill. heat numbers.

Steel reinforcing bar supports shall be CMU support (ADobi@) blocks with attached wire ties or approved equal.

Tie wire shall be 16 gauge annealed wire.

Welded wire fabric shall conform to ASTM A-185.

**B. Fabrication:**

Fabricate bars of indicated size. Accurately form to shapes and lengths indicated by methods not injurious to the materials. Do not heat reinforcement for bending. Bars with kinks or bends not scheduled will be rejected.

**III. EXECUTION**

**A. Placing:**

Coordinate all work with other trades.

All bars shall be as shown on the drawings, accurately placed and wired in position by 16 gauge annealed wire. Tie stirrups to bars at both top and bottom. Bend wire ties away from forms.

Maintain proper distance and clearance between parallel bars and forms. Provide metal spreaders and spacers to hold steel in position as necessary.

Support steel at proper height upon approved support system, transverse steel bars with hangers, or in other manner as necessary to accurately place and secure bars. Maintain clear spacing between parallel bars of not less than 1 2 times the bar diameter, but in no case less than 1 2". Lap and splice bars in the manner and at the locations shown on the drawings.

Bars on footings or slabs on grade shall be supported on concrete blocks. Reinforcing steel in beams and suspended slabs shall be supported on steel chairs.

Provide additional reinforcing bars at sleeves and openings.

Before placing reinforcing and again before concrete is placed, clean reinforcement of loose mill scale, oil or other coating that might destroy or reduce bond.

Splices shall be made with a lap of 30 bar diameters unless noted otherwise.

**END OF SECTION**

## SECTION 03300 – CAST-IN-PLACE CONCRETE (VERTICAL ELEMENTS)

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSWC) latest edition apply except as modified herein. Available through *Building News Publications*, Telephone #: (714) 517-0970.

#### A. Related Work Specified Elsewhere:

Concrete formwork.  
Concrete reinforcement.  
Concrete specialty - Shotcrete.  
Miscellaneous Metals.

#### B. Quality Assurance:

Material quality standards and testing procedures shall be in accordance with the American Society for Testing Materials, hereinafter referred to as "ASTM". All ASTM standards and testing procedures shall be the latest requirements.

All tests shall be made by a testing laboratory acceptable and approved by the City Representative.

The cost of sampling and testing concrete required by the specifications shall be borne by the City.

One mechanical analysis and one decantation test shall be made of the sand and coarse aggregate proposed for the work.

Concrete specimens shall be taken when directed by the City Representative. At least one pair of specimens shall be taken from each pour of concrete or from each one-hundred cubic yards of concrete or major fraction thereof. One cylinder from each pair shall be tested at 7 days. One from each pair shall be tested at the age of 28 days. Concrete for specimens shall be taken from place of deposit. Specimens shall be prepared and tested in accordance with the latest ASTM specifications.

Additional tests shall be made when and as directed by the City Representative. Cost of additional tests shall be borne by City.

Defective Concrete:

Should concrete strengths not attain the minimum specified at 28 days, the area of substandard work shall be examined by the City Inspector. The defective concrete shall be removed and replaced or the work shall be strengthened in a manner as directed by the City Inspector.

The cost of all examination and testing of defective material, as well as corrective measures, shall be borne by the Contractor.

#### C. Record Drawings:

The Contractor shall provide record drawings that accurately locate embedded utilities and components when they are concealed from view.

The cost of all examination and testing of defective material, as well as corrective measures, shall be borne by the contractor.

### II. PRODUCTS

#### A. Materials:

All concrete for the project shall have a minimum ultimate compressive strength at 28 days of 3,500 psi. Portland Cement shall be Type II, low alkali, and shall conform to ASTM C150.

Concrete aggregate shall conform to ASTM C33. All aggregate shall be well graded and selected from a source that has a proven history of non-reactivity and shall conform to ASTM C 289. Maximum aggregate size shall be one (1) inch.

Fine aggregate shall consist of washed natural sand having hard, strong and durable particles and which does not contain more than 2% by weight of clay, loam, shale, alkali, organic matter or other deleterious substances.

Coarse aggregate shall consist of clean, hard, fine grained, sound crushed rock or gravel, which does not contain more than 5% by weight of flat, chip-like, thin, elongated, friable or laminated pieces. Any piece having a major dimension in excess of two and one-half (2 1/2) times the average thickness and which will adversely affect the strength of the concrete shall not be used.

Water shall be clean and free from deleterious amounts of acids, alkalis, and organic materials.

**B. Proportions and Mixing:**

The concrete shall be composed of cement, sand and coarse aggregate in the proportions as determined by the testing laboratory.

The water/cement ratio shall be a maximum of 0.48.

Maximum slump of concrete shall be four (4) inches. The concrete shall be mixed as directed herein:

Each transit mixer shall be equipped with automatic devices for recording the number of revolutions of the drum prior to completing the mixing, with peripheral drum speed of approximately 200 feet per minute.

Transit-mix concrete shall be mixed for a period of not less than ten minutes. At least three minutes of the mixing period shall be immediately prior to discharging at the job.

Transit-mix concrete shall not be delivered to the work site with the total specified amount of water incorporated therein. Two gallons of water per cubic yard shall be withheld, and may be incorporated in the mix, before the concrete is discharged from the mixer truck.

Transit-mix concrete shall be rejected if not placed in final position within ninety (90) minutes after water is first added to the batch. The concrete, at time of placing, shall be in such condition that it can be properly placed.

Concrete shall be air-entrained by use of an approved admixture to provide an air content of 5-1/2%  $\nabla$  1%.

Submit mix design for review by City.

**III. EXECUTION**

**A. Placing of Concrete:**

Before the placing of any concrete, all forms shall be thoroughly cleaned and wet. Concrete shall be poured into forms immediately after it is mixed, and so that no separation will occur. No concrete which has stood for more than fifteen (15) minutes after leaving the mixer shall be used. Concrete shall be rejected if not placed in final position within ninety (90) minutes after water is first added to the batch.

All forms and reinforcement to be inspected prior to pour by City Representative.

Sandblast all surfaces on which concrete is to be placed. City Representative to approve a 24" square sample. Maximum free drop of concrete shall not be more than 5'-0". Use tremies in deep sections.

The location of all stoppages shall be approved by the City Representative.

The flow surface of the freshly poured concrete shall be level wherever any pour is stopped and tight dams shall be built as necessary to accomplish this result. Construction joints shall be made only when unavoidable,



and then only at the point determined by the City Representative. Details of such joints shall be as directed by the City Representative.

Before the placing of any concrete, the surface of the previously poured concrete shall be wet.

**END OF SECTION**

## SECTION 03303 – SIDEWALK, CURB & GUTTER

### I. GENERAL

#### A. Description

- The WORK under this Section includes providing all labor, materials, tools, and equipment necessary for furnishing and installing concrete pavement, sidewalk, curb, and gutter as shown on the Drawings and Standard Details.

#### B. Related Work

- Section 01530 Protection and Restoration of Existing Facilities Section 02319 Base Course
- Section 02610 Asphalt Concrete Paving

### II. PRODUCTS

#### A. MATERIALS

- Materials shall conform to the requirements of Section 201, Concrete, Mortar and Related Materials of the Standard Specifications for Public Works Construction, or approved equal.
- Colored concrete additives shall be provided by the Contractor for areas to have integral color.
- Truncated Dome tactile material shall be installed by the contractor in conformance with Federal Access Guidelines.
- Concrete pavement shall be Class A mix design, and concrete for sidewalks and curbs shall be class C mix design. Strength of concrete shall be a minimum of 3250 psi for all concrete work.

### III. EXECUTION

#### A. METHODS OF CONSTRUCTION

- Sidewalk, concrete slabs, curb and gutter, and valley gutter shall conform to the applicable requirements of Section 02770 – Site Concrete Work, and as shown on the Drawings. Colored concrete shall be supplied for all walk construction.
  - o The curing compound shall be sprayed on the surface with a low-pressure sprayer immediately following the finishing operation.
  - o The entire surface shall be kept wet for 30 minutes by brooming excess material onto the dry spots or by re-spraying them immediately. No areas on the concrete surface shall be allowed to dry during the initial 30 minute period.
  - o As the curing compound begins to dry into the surface and becomes slippery, lightly sprinkle the surface with water to aid the penetration of the curing compound and to bring any alkali to the surface.
  - o After 30 to 40 minutes, squeegee or broom the surface to remove any excess curing compound and alkali or other impurities brought to the surface. All WORK required for the application of the curing compound shall conform to the manufacturer's recommendations.
- All exposed or unprotected edges of sidewalks shall be tooled to a radius of not more than one-half inch. After floating, trowel finish the entire surface using steel trowels. Final finish shall be obtained by brooming the surface, including the tooled edge, to a gritty finish after all free moisture has disappeared from the surface. Sprinkling of cement or sand for blotting will not be permitted.
- Concrete curb and gutter, curb, and valley gutter shall be integral, one course construction, and molded in place on a prepared and compacted subgrade surface. The face forms of the integral curb and gutter shall be removed as soon as practicable. The top and inclined surface shall then be worked with float or steel trowels to a gritty finish. Glazing, sprinkling of sand or cement, or blotting will not be permitted. Both front and back edges shall be tooled to a radius of one-half inch.
- Use of monolithic curb and gutter machines will be permitted only on the written approval of the ARCHITECT. Mortar may be added to the curb machine in a quantity approved by the ARCHITECT.

- Expansion joints shall be placed at 30-foot, maximum, intervals along all structures and about all features that project into, through, or against the concrete. An expansion joint shall be constructed at the intersection of sidewalks, between sidewalk crossings and sidewalks and at the beginning and end of curb returns. Expansion joints shall not be placed between the sidewalk and the curb. See plans for location of all joints.
- Expansion joint material shall conform to the requirements of AASHTO M 213. This material shall extend the full width of the structure and shall be cut to such dimensions that the base of the expansion joint shall extend to the subgrade and the top shall be depressed not less than one-quarter inch nor more than one-half inch below the finished surface of the concrete. The material shall be one piece in the vertical dimension and shall be securely fastened to the existing concrete face against which fresh concrete is to be poured. Expansion joints shall be sealed with rubberized polyurethane material to seal expansion joint. Sealant shall be grey in color.
- Transverse contraction joints (score lines), cut to a depth of one-half inch prior to the final set of the concrete, shall be tooled in the sidewalk at intervals approximately equal to the width of the sidewalk, and at ten foot intervals in the curb and gutter. Where the sidewalk adjoins the curb (parallel to it), contraction joints in the sidewalk and curb shall be made to match where practicable. See plan for location of all joints.
- The top and face of the finished curb shall be true and straight and the top surface of curbs shall be of uniform width, free from lumps, sags, or other irregularities. When a straightedge 10 feet long is laid on the top or face of the curb, or on the surface of gutters, the surface shall not vary more than 0.02 foot from the edge of the straightedge except at grade changes or curves. All discolored concrete shall be cleaned at the CONTRACTOR's expense. The concrete may be cleaned by abrasive blast cleaning or other methods approved by the ARCHITECT. Repairs shall be made by removing and replacing the entire unit between scoring lines or joints.
- Sidewalks at driveway approaches shall have a minimum thickness of six (6) inches.
- Colored concrete shall be placed in areas designated on the Plans. The Contractor shall provide color samples to ARCHITECT for review and approval prior to placement of final concrete. Contractor shall determine the quantity of color additive to be added to the mix to achieve desired color match. Contractor shall supply a sample pour and finish of 2' x 2' for review and approval by ARCHITECT.
- Truncated dome material shall be installed by the Contractor on all curb ramps and sidewalks as shown on the plans. Color shall be yellow, or as approved by the ARCHITECT. Contractor shall not install truncated dome material until concrete surfacing has sufficiently cured and ready for placement of truncated dome material. Minimum curing time shall be 21 calendar days or as approved by the ARCHITECT.

**END OF SECTION**

## SECTION 03310 – CONCRETE (TITLE 24)

### I. GENERAL

The provisions of Title 24 CCR 1991 Edition, except as modified herein.

#### A. Work Included in This Section:

Exterior walks and slabs, as shown on drawings.  
Forms.  
Reinforcing steel and wire mesh for concrete.  
Cement finish, joints, saw cuts and patching. Wall footings and building foundations.  
Footings for fence post.  
Setting of items to be inserted into concrete.  
Curing.  
Testing.  
Miscellaneous concrete items.

#### B. Related Work Specified Elsewhere: Concrete finishes - Section 03350.

Furnishing and determining location of items to be inserted into concrete. Subgrade preparation.

Aggregate base - Earthwork & Grading - Section 02200. Miscellaneous Metals.

#### C. Standards:

Testing, materials and workmanship shall conform to the requirements of the Standard Specifications and the applicable Building Code. The most stringent requirement shall apply.

### II. MATERIALS

#### A. Reinforcing Steel and Wire Mesh:

Reinforcing steel shall conform to Section 201-2.2 of the Standard Specifications and shall be Grade 40. Wire mesh shall conform to Section 201-2.4, Standard Specifications.

#### B. Portland Cement Concrete:

All materials shall conform to the requirements of Title 24 Part 2 Chapter 26 CCR.

#### C. Crack Joint Control:

Shall be "Quick Joint" or approved equal. Submit samples of preformed materials for approval of the Agency Representative.

#### D. Curing Compound:

Type 1 per Section 201-4, Standard Specifications.

#### E. Concrete Formwork:

Tie wire: Black annealed, not lighter than No. 12.

Forms shall be constructed of approved materials. Lumber for studs, wales, and other structural components shall be No. 2 or better Douglas fir, SISIE, or S4S, not less than 2" in nominal thickness. Plywood shall be Plyform, Grade B-B,

either exterior or interior type conforming to Commercial Standard CS45-48 for Douglas fir plywood, not less than 5/8" in thickness when used without sheathing and of any standard thickness when used as a lining.

General. Forms shall be constructed true to line and grade; shall conform to the shape and dimensions of the required concrete and shall be sufficiently tight to prevent the leakage of mortar and sufficiently rigid to prevent displacement or sagging between supports. Forms shall be so constructed that they can be removed without damage to the concrete. Forms for curved surfaces shall be so constructed and placed that the finished surface will not deviate from the arc of the curve, flat spots shall not be permitted.

Approval of Forms and Reinforcement. Forms and metal reinforcement shall be checked and approved by the Engineering or Building Inspector before concrete is placed.

### **III. EXECUTION**

#### **A. General:**

All work shall conform to the requirements of Title 24, Part 2, Chapter 26 CCR.

Install concrete and cement finish work true to lines, dimensions and levels, exterior finishes specified on plans.

Remove and replace defective concrete or cement work with new materials. Permission to patch any defective area shall not be a waiver of the Engineer's right to require complete removal of defective work if patching does not restore quality and appearance of work.

No advertising impression, stamp, or mark of any description will be permitted on surface of concrete or cement finish.

Any site furnishings, such as benches, fountains, etc., shall be installed prior to placing any surrounding slab. Sleeves may be used upon approval of shop drawings by Agency Representative.

#### **B. Miscellaneous Items of Concrete Work:**

The Contractor shall thoroughly study the plans to determine the extent of concrete curbs, gutters, and mowing strips, all of which shall be included in the work of this Section.

The Contractor shall thoroughly study the Mechanical and Electrical plans to determine the extent of the following and similar items of concrete work which may occur, all of which shall be included in the work of this Section (unless otherwise specified):

Valve or yard boxes (except pre-cast).

Foundations or bases for mechanical and electrical equipment.

Concrete pads for exterior cleanouts.

Where structural details for the minor structures listed above are not complete, the walls, floors and covers shall be 6" in thickness and reinforced with 3/8" round bars, 6" on centers both ways in center of the members.

The Mechanical and Electrical subcontractors shall provide the Contractor with detailed information concerning the location, size and elevation of any and all of the items of the work listed above. They shall also provide all anchor bolts and other inserts that may be required and shall check the setting thereof prior to the pouring of concrete.

#### **C. Cement Finish:**

Compact and tamp concrete as specified to bring 3/8" of mortar to surface, wood float to straight edges and screeds, and apply following finishes. Do not use steel or plastic floats of any kind for initial floating operations. Unless

otherwise specified, do not apply following finishes until surface water disappears and surface is sufficiently hardened. Remove any bleed water and laitance as it appears.

**D. Slabs and Walks:**

- Broom Finish:

Apply steel float finish as specified hereinbefore. While surface is still sufficiently soft, apply broom finish using approved wire broom. Apply finish perpendicular to direction of traffic.

- Formed Concrete Stairs and Landings:

Form angles neatly and run nosings straight and level to template. Cut risers back as shown. Apply abrasive finish on treads and landings, and give risers a burnished monolithic trowel finish.

- Expansion joint materials shall be the non-extruding and resilient type consisting of premolded stripe of a durable resilient compound composed of mineral or vegetable matter or a stable mixture of these elements. The surface of the previously constructed concrete shall have a trowel coat of an approved bituminous cement. The filler shall extend to the bottom of the slab and shall be approximately 1/2" below the top of the finished surface. The filler strip shall be secured to insure against movement during placing of the concrete. Adjacent strips shall be clipped together to insure continuity and to avoid the possibility of the concrete getting into the expansion joint space. Before the pavement is opened to traffic, the groove above the filler shall be cleaned and then sealed with an approved joint sealing compound, in accordance with paragraph for "Caulking" below.

**E. Location of Expansion and Control Joints:**

Locate expansion and control joints to least impair the strength and appearance of the structure. In no case place an intersecting construction joint in such a way that two intersecting walks are separated by a construction or control joint at the point of intersection. Transition curves shall be part of a continuous pour of the intersection slab. Expansion joints shall be a maximum of 20 feet apart, with control joints a maximum of 10 feet apart. Exception to this are specialty work joints which will be laid out as shown on the drawings. Contractor shall obtain Agency Representative's approval of layout showing proposed location of joints before pouring concrete.

**F. Caulking:**

Caulking of expansion joints where called for on drawings, shall be done with a non-tracking, multi-part flow type, self-leveling, polyurethane sealant manufactured by Chem-Seal, W.R. Grace, 3-M or approved equivalent. Color shall be medium gray. Caulking shall be done by an experienced applicator in a workmanlike manner, in smooth straight runs, after thoroughly cleaning and priming joints. All work shall be done in strict accordance with manufacturer's printed recommendations. Do not permit traffic to travel over sealed joints until sealer has fully cured.

**G. CurIng:**

All concrete slabs on grade shall be covered within 24 hours after troweling with a strong waterproof, non-staining, 2-ply kraft paper with an asphalt membrane in the center, reinforced with crossed fibers embedded in the asphalt. The paper shall be lapped 3 inches at the joints and sealed at joints and edges in an approved manner. The paper shall remain in place until removal is authorized. Heavy boards shall be provided when necessary to protect the paper and slabs from damage by other construction work.

**IV. QUALITY CONTROL**

**A. Smoothness Tolerance:**

Interior and exterior cement finish surfaces shall be of such smoothness and evenness that they shall contact the entire length of a 10' straight edge laid in any direction, with an allowable tolerance of 1/8 inch. Any operations necessary to achieve this result shall be performed by the Contractor at no additional cost to the Agency.

**B. Inspections:**

Inspections will be provided as necessary. Call for inspection two (2) working days prior to need.

The Contractor shall call for inspection during specific phases of construction. They shall include:

All form work prior to pouring.

All footings prior to pouring.

Subgrade prior to pouring.

Contractor shall notify the Engineer twenty-four (24) hours prior to pouring any concrete.

Any work covered prior to inspection shall be opened to view by the Contractor at his expense.

**C. Testing:**

Tests required. Compression tests of concrete shall be made as required by Title 24 CCR(refer to Section 01410-01420) tests of any grade of concrete shall be made whenever the quantity of that grade used in the project exceeds 25 cubic yards. At least two identical cylinders of each grade of concrete shall be taken of each 100 cubic yards of concrete or fraction thereof placed in the work. The cylinders shall be tested in a testing laboratory and test reports submitted to the Engineer.

Storage of test cylinders on the site and after delivery to the testing shall be in accordance with A.S.T.M. Designation C31.

All concrete not covered by the Building Code will be tested according to Standard Specifications.

Should the strength by test fail, the mix shall be adjusted so that the resulting concrete will comply with the minimum requirements, and all additional expense resulting from such adjustment shall be borne by the Contractor. Further, should the strength of any grade by test fall below minimum, concrete from the defective pours which is in place may be tested by the core method, and if such tests show the concrete to be defective, the concrete shall be removed and replaced or adequately strengthened as required under the governing Code; and all expenses involved shall be borne by the Contractor.

**END OF SECTION**

## SECTION 03350 – CONCRETE FINISHES

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC) latest Edition apply except as modified herein.

#### A. Scope:

Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified, and as necessary to complete the Contract, including, but not limited to, these major items:  
Finish of all concrete. Curing of flatwork. Sealers.

#### B. Related Work Specified Elsewhere:

Formwork. Reinforcement.  
Curing vertical surfaces.  
Patching and repair of formed surfaces.

#### C. General Requirements:

- Field Conditions.
  - o Verify drawing dimensions with actual field conditions. Inspect related work and adjacent surfaces. This section supplements Concrete, Section 03310.
  - o Finish all surfaces to present a uniform appearance throughout the area involved, and throughout adjacent areas with the same treatment.
  - o Where finishing occurs adjacent to finished metal or other finished surfaces, particularly where serrated or indented, remove all traces of cement film before it hardens. This applies particularly to stair nosings and similar items.
- Samples.
  - o In accordance with Section 1.34, submit duplicate samples of proposed finishes requested by the Architect; sizes as directed. Finished work shall match samples as approved by Architect.

### II. MATERIALS

#### A. Portland Cement:

Per Section 03300.

#### B. Aggregates:

Per Section 03300.

#### C. Water:

Per Section 03300.

#### D. Concrete Surface Retarder:

Form Grade Concrete Surface Retarder, by L.M. Scofield Co., 323/720-3000, or other approved by Architect.

#### E. Curing and Protection Paper:

Sisalkraft Orange Label or other conforming to ASTM C171, as approved by the Architect.

#### F. Color and Hardeners:

"Lithochrome" color hardener, by L.M. Scofield Co., or approved equal.

#### G. Divider Strips Embedded in Concrete Finish:

One piece extruded zinc alloy strips of the type and size required by Duggan Manufacturing Co., Los Angeles, or approved equal.

#### H. Slip Resistant Additive:

"Emerchrome" floor hardener, by L.M. Scofield Co., or approved equal.

#### I. Expansion Joint Sealer for Use Except Where Sealants Specified Under Caulking and Sealants are Required:

"Igas Joint Sealer", by Sika Chemical Corp., or other approved by the Architect.

#### J. Curing and Hardening Compound:

For use on finish indicated to be left exposed. Material shall contain a fugitive dye. Approved products include West "Concrete Floor Treatment", Upco "Polyclear", Hunt "MD7C", Tock Bros. "Cureetox", and Sonneborn "Kure-n-Seal".



- K. Sealer:**  
Hunt "MD-7C", Sonneborn "Kure-n-Seal", or Upco "Polyclear". Apply in accordance with manufacturer's recommendations.

### III. EXECUTION

#### IV.

- A. Floating:**  
Bring slabs to proper level, using screeds and strikeoff with a straightedge. Remove excess water and laitance. Compact by rolling with weighted rollers and by tamping with grid tampers. Float with power rotary floating machine. Thoroughly hand tamp areas not accessible for rolling. Float areas not accessible for power floating by hand, using a wood float. Test surface with a 10' straightedge, and eliminate high and low spots of 1/8" or more. Cumulative tolerances are not allowed.
- Screeds.  
Of such type and construction, and so spaced and located as to provide surface tolerances specified. Use continuous screeds to provide surface over which to drag straightedges. Refer to requirements under Concrete Section which apply to this work.
- B. Metal Divider Strips:**  
Where concrete floors finish against other materials, set combination screed and divider strip, secured in place and protected by shores until concrete on opposite side is installed. Insure that top of screed is at the exact required relationship with the top of the two finished surfaces to finish flush.
- C. Embedded Items:**  
Set items as exact required elevations, level and in proper relationship to other work. Where items have a drainage function, insure that slabs slope to them properly. Adjust finish work to properly connect and fit to other work.
- D. Defective Finishing:**  
Finish which is not true to line and plane, which is not thoroughly troweled and properly surfaced as required, which varies in excess of requirements along a 10' straightedge, which scuffs or has a rough top surface (except where required), which does not connect properly to adjoining work, which does not slope to drains, which does not match approved samples, or is not properly cured, will be deemed defective. Remove and replace with proper work and material conforming with contract requirements, and to limits directed by the Architect.
- E. Protection:**  
Protect all finished work from damage by impact or from building rubbish. Protect work of others from damage by this work. Protect exposed slabs and slabs which receive applied coatings from soiling from foot traffic and subsequent work performed after finishing; use protective paper cover hereinbefore specified. Maintain protection in effective condition as long as the need exists. Control the use of water within the building so that no damage to previously installed work or existing structure and finish occurs.
- F. Markings:**  
At expansion joints and elsewhere as indicated on the drawings, provide markings with a rounded edging or marking tool to a 1/4" radius.
- In textured work, edge and mark with a combination edging and smoothing tool approximately 1 2" wide.
- Where so indicated, or where required tooled markings may have been inadvertently omitted, provide markings cut into surface of cured concrete with a diamond abrasive saw. Properly coordinate this work with the work of other trades in order to avoid damage to adjacent surfaces. Unless detailed otherwise, cut sawed markings 1/8" wide by 3/4" deep.
- Make marking lines straight or curved where required by the drawings, equally spaced and parallel to adjacent lines or walls, edges and other construction, and of uniform depth and cross section, with intersections accurately formed.
- G. Bases:**  
Provide cement base where indicated. Mix: Two parts fine aggregate to one part Portland cement with a minimum amount of water to make a relatively dry mixture. Shape all work true to detail.
- H. Schedule of Finishes:**  
The applicator of process concrete finishes must examine the substrate and the conditions under which work is to be performed and notify the Contractor in writing of unsatisfactory conditions. Do not proceed with the work until satisfactory conditions have been corrected in a manner acceptable to the applicator.

Comply with air pollution and safety regulations of governing authorities.

Protect adjacent materials and finishes from dust, dirt, and other surface or physical damage during finishing operations. Provide all protection as may be required and remove from site at completion of the work.

Float finish all slab surfaces which are to receive trowel finishes and other surface or physical damage during finishing operations. Provide all protection as may be required and remove from site at completion of the work.

Float finish all slab surfaces which are to receive trowel finishes and other finishes as specified and noted on drawings. After screeding and consolidating slabs, begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Hand-float in areas inaccessible to power units. Check and level surface plane to a tolerance not exceeding 1/8" in 10' when tested with a 10' straight edge. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.

- Slab Finishes:

- o Steel Trowel Finish: Same as monolithic trowel finish, except omit burnish troweling. Apply on garage floor surfaces.
- o Wood Float Finish: Float to screeds. When ready, finish with wood floats to a uniformly textured surface. Apply on surfaces to receive waterproofing membranes, resilient floorings, carpet and wood flooring.
- o Sweat Trowel Finish: Same as steel float finish, except perform last troweling with circular motion and slight lifting of trowel to produce uniformly swirling nonslip finish. Apply on exposed floors in mechanical equipment rooms and spaces.
- o Rough Finish: Float to screeds. When surface water disappears, roughen surface in two directions with stiff wire brooms or garden rakes. Apply on slabs to receive mortar underbeds.
- o Abrasive Finish: Same as steel trowel finish. Just before final troweling, uniformly apply abrasive aggregate at minimum rate of 1/4 pound per square foot, and lock into cement matrix with last troweling. Lightly brush green, set concrete surface to expose grains and remove cement film. Apply on all concrete stair treads and landings. A medium broom finish to all paving unless otherwise specified.
- o Broom Finish: Provide a rough broom finish on all slabs scheduled to receive a ceramic tile floor on setting bed.
- o Steel Trowel Finish: Provide steel trowel finish to all concrete surfaces as noted on drawings and hereinafter specified.

After concrete is sufficiently hardened to prevent drawing moisture and fines to the surface, finish trowel in two operations. Perform first operation with a power rotary trowel until matrix no longer accumulates on the trowel. Do not use cement, sand, or a mixture thereof to absorb excess moisture and do not add water to facilitate troweling. Perform second troweling until there is a distinct ringing sound under the trowel and a smooth, hard-burnished surface is obtained. Use liquid curing membrane.

Location: Under resilient flooring, wood floor, carpet, thin set tile and at all interior exposed floors not otherwise indicated.

Sealing: Just prior to final inspection, those floors which will be left exposed shall be scrubbed with detergent and water using a mechanical scrubber. Apply Sonneborn "Son-No'Mar" or equal product approved by the Architect, in accordance with manufacturer's recommendations. Provide manufacturer's 5 year guarantee against dusting.

- o Colored Concrete: Where indicated on drawings, exposed concrete floors shall receive a colored and slip resistant finish. Color shall be of the dry-shake type, applied in strict conformance to manufacturer's instructions. A non-slip aggregate (natural aluminum oxide) shall be applied to the colored concrete surface while still in its plastic state. Application shall be compatible with coloring material and be applied per manufacturer's instructions. Color to be selected by Architect from manufacturer's standard palette.

- Exposed Aggregate Concrete, Rock Salt Finish Concrete: Aggregate or rock salt finish concrete shall refer to paving as indicated on the drawings.

Sample: Contractor shall provide one (1) foot square samples of the specified paving for approval by the Agency Representative. An approved sample shall be maintained by the Agency Representative and used as a comparison to installed work. Work which does not conform to the samples shall be removed and replaced at no additional cost to the Agency.

Slab Thickness: 4" minimum.

Aggregate shall be 1/4" to 3/8" size San Gabriel pea gravel. Submit samples for approval to Landscape Architect before construction.

*Aggregate Paving Installation:*

- Finish surface to grade and cross-section with steel trowel to produce an even surface.
- Score lines shall be made with a 1/8" radius jointing tool. See drawings for locations of score lines. Edge lines at existing sidewalk, paving edges, and at expansion joints shall be made with a 1/4" radius jointing tool.
- Allow to set up 2-4 hours, depending on weather conditions.
- Brush surface with a stiff broom and water, to wash all cement off the surface aggregate and expose it without dislodging the aggregate.
- Surface to present an even appearance with only top of aggregate exposed and interstices free of pits and washouts.
- In approximately one week, clean surfaces with diluted muriatic acid wash and then rinse.
- Vertical exposure of aggregate shall exceed 1/16". Aggregate coverage of the finished surface shall be 90%.

*Rock Salt Finish Installation:*

- Salt:
  - Coarse and/or extra coarse rock salt, not pellet form.
- Application:
  - 100 pounds per 600 square feet. Spread coarse rock salt first and tamp into concrete, then apply extra coarse rock salt and tamp into the concrete. Do not spread both sizes of rock salt in one application. (Indicate percentage of each size of rock salt to be used.) Concrete finish shall be sweat-trowel finish before applying salt.
- Curing:
  - On plain concrete use Hunt's TLF. On colored concrete use color wax recommended by manufacturer of color additive used in the concrete.
- Non-Slip Aggregate Finish:
  - All handicapped ramps shall be given a medium rough rotary trowel finish.

**END OF SECTION**

## SECTION 04200 – MASONRY

### I. GENERAL

- All materials and work shall conform to the Standard Specifications for Public Works Construction (SSPWC) latest edition, Sections 201 and 303, except as modified herein.

#### A. Scope:

- Furnishing and installing concrete masonry units.
- Protective measures for the prevention of damage to completed masonry and other work.
- Removal of and disposal of surplus materials, debris, dirt, stains, etc., caused by the work, leaving the premises and all finished surfaces clean.
- Setting and incorporating steel reinforcing into the masonry. Setting and incorporating of steel inserts supplied by other trades.

#### B. Related Work Specified Elsewhere:

- Footing Concrete: Section 03300.
- Waterproofing: Section 07120.

### II. PRODUCTS

#### A. Steel Reinforcement:

Steel reinforcement shall conform to Standard Specifications, Section 201-2.

#### B. Masonry Units:

Hollow masonry units shall be precision block that conform to Section 202-2.1.1 of the Standard Specifications, compressive strength as required by structural drawings.

Block dimensions shall be as indicated on plan and color shall be .

All block shall be from same run. Cement, water, reinforcing steel shall conform to applicable sections of these specifications.

Mortar for masonry units shall conform to Section 202-2.1.2 of the Standard Specifications, and shall be colored to match the block.

Grout for masonry units shall conform to Section 202-2.1.2 of the Standard Specifications. Samples. Submit samples of block to Agency Representative for approval.

### III. EXECUTION

#### A. Masonry:

Construct a 4' x 4' sample panel for Agency Representative's approval.

Work shall conform to Section 303-4 of the Standard Specifications, except as modified herein.

Masonry units shall be laid as reinforced filled cell hollow unit masonry. Block shall be laid in running bond with 2" full mortar bed on all face, shells, and on webs at cells to be filled. Vertical faces of head joints shall be buttered to a depth of 1 2" minimum from each side and all joints shall be shoved tightly so that the mortar bonds well to both blocks. Furrowing of the mortar will not be permitted. All cells containing reinforcement shall be completely filled with grout or concrete using an aggregate consistent with the size of the cell. Where dowels do not occur in the same cells as the vertical wall reinforcement, grout cells at dowels to the same height as the dowels. Where block cutting is necessary, it shall be done with a motorized masonry saw. Refer to details to ascertain where smooth face blocks are required. (Where required on plans, grout all cells.)

- Steel Reinforcement.
  - Keep all reinforcement 2" clear (minimum) of all surfaces to permit the grout to fully surround the reinforcement. See plans for placement of steel.
- Joints.
  - Nearly as possible of uniform thickness, 2" thick horizontal joint at block, head joints may vary. All interior and exterior horizontal and vertical joints tooled with slightly concave profile.
- Curing.
  - Keep masonry moist continuously for a minimum of 3 days after being laid.
- Partial Blocks:
  - Saw cut all partial concrete blocks required for this construction.

**B. Defective Workmanship and Materials:**

All work which does not conform to the requirements of the specifications shall be deemed defective and shall be removed from the site, or shall be strengthened and/or replaced as directed by the Agency Representative.

**C. Cleaning:**

At the completion of masonry work, thoroughly clean all masonry walls and leave interior and exterior surfaces of walls free from mortar and other stains. Remove all scaffolding and equipment used in the work. Clean up all debris, refuse and surplus materials and remove them from the premises.

**END OF SECTION**

## SECTION 05010 – MISCELLANEOUS METALS

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC) latest Edition, Sections 206 and 210, apply except as modified herein.

#### A. Scope:

Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified, and as necessary to complete the Contract, including, but not limited to, these major items:

- Shapes, sleeves, anchors, connectors, plates, backing plates, supports and fastenings required, but which are not specified in other sections.
- Steel tube fences and gates.
- Woven wire panels and gates.
- Vehicle access gate and chains.
- Channel jambs for wood gates.
- Prime coating ungalvanized steel items.
- Welding.

#### B. Related Work Specified Elsewhere:

Setting of items to be embedded in concrete.

Finish hardware for trash area wood gates - Finish Hardware, Section 08710.

Prefabricated metal items - Pertinent sections.

#### C. General Requirements:

Field Conditions. Verify drawing dimensions with actual field conditions. Inspect related work and adjacent surfaces. Report to the Agency Representative all conditions which prevent proper execution of this work.

Shop Drawings. Submit six (6) sets in accordance with Sections 01340 and 05120, showing in complete detail all information required for fabrication, finishing and installation of this work.

Codes. Materials and work shall conform to the governing Building Code. In case of conflict between these specifications and the Building Code, the more stringent shall govern.

General. Examine all drawings and specifications and include all miscellaneous metal which is specified in other sections. Provide all connections, anchors, bolts, and other fastenings as required. Do all cutting, punching, drilling and tapping required for proper assembly of the work.

Delivery. Insure that items to be set in concrete or masonry are delivered at the proper time.

### II. EXECUTION

#### A. Steel Shapes:

- Conform to ASTM A36.

#### B. Steel Pipe:

- Conform to ASTM A53, Grade B.

#### C. Malleable Iron Castings:

- Conform to ASTM A47.

#### D. Welding Rods:

- Conform to requirements of AWS for intended use.

#### E. Galvanizing:

- Conform to ASTM A123.

#### F. Bolts, Nuts, Screws:

- Conform to ASTM A307, Grade A.

#### G. Steel Plate:

- Conform to ASTM A283, Grade A.

- H. Steel Tubing:**
- Conform to ASTM A501.
- I. Bars, Flats, Rounds:**
- Conform to ASTM A36, standard grade mild steel.
- J. Paint-Shop Prime Coat for Ferrous Metal:**
- "X-60 Red Bare Metal Primer," "769 Damp-Proof Red Primer," or "960 Zinc Chromate Primer," as manufactured by Rust-O-Leum Corporation, or Themec #99 Metal Primer.
- K. Touch-up for Galvanized Surfaces:**
- All State #321 Galvanizing Powder (30% tin, 30% zinc, 40% lead and flux).
- L. Miscellaneous Material:**
- As indicated or specified.
- M. Shop Prime Coat:**
- Ferrous Metal. Properly clean and prepare for painting in compliance with the paint manufacturer's instructions and apply one shop coat of material of the type specified. Thoroughly and completely cover all exposed surfaces as well as surfaces concealed after assembly. Apply primer by brush or spray gun, as best adapted to the paint material and surface conditions. Allow primer to become dry and hard before handling. Apply second coat primer to 1 mil minimum dry coat thickness and touch up after installation and leave in proper conditions to receive finish coats.
- N. Galvanizing:**
- Galvanize all exterior items and those interior items so specified or indicated on plans. Use the hot dip process, conforming ASTM A123. Galvanizing shall be done after fabrication.
  - Average weight of zinc coating per square foot of actual surface: Not less than 2.0 ounces, with no individual specimen showing less than 1.8 ounces. (One ounce of zinc corresponds to a coating thickness of 0.0017 inch.)
- O. Fabrication:**
- Using skilled mechanics, form and fabricate items of work as indicated and as required to meet installation conditions. Make provisions to connect with or receive the work of other trades.
  - Unless otherwise indicated weld or bolt connections in the members. Where possible, conceal connections in the finished work. Where exposed screw fastenings are required, use phillips ovalhead screws to match parent material. Fit or miter exposed joints to hairline tolerance or use welded joints. On finished surfaces, grind all welds smooth and flush with base metal.
  - Bend pipe or tubing without collapsing or deforming the walls, and so as to produce a smooth uniform curved section and maintain uniform sectional shape.
  - Where items are to be embedded in concrete or masonry, provide welded-on anchors or lugs as indicated or required.
- P. Items Embedded in Concrete:**
- Provide bolts, eyebolts, dowels, anchors, plates, inserts, and other miscellaneous items that are to be installed in forms before concrete pouring, or for building into masonry, as indicated. Examine and check the drawings for the number type and location of such items.
- Q. Installation:**
- Install all items plumb, level and square, securely and rigidly attached to supporting construction and as detailed.
- R. Description of Items:**
- Those items which are standard or stock design which are sufficiently detailed or described on the drawings to permit their fabrication and installation are not covered herein even though they may be included in the scope.
  - Channel jambs for wood gates, straps, anchors and plates for timbers.
    - Wire mesh panels and gates:
      - All galvanized and conforming material and manufacturing standards of Acorn Wire & Iron Works. Fabric: 1-1/2" diamond mesh; 10-gauge
    - Frames:
      - For toilet room enclosures in restroom building: 1-1/2" X 3/4" X 1/8" closed channel type.
      - Clinch wire thru channels for each panel.
      - For gable end clerestory panels in restroom building and service building: 1-1/2" X 3/4" X 1/3" channels; clinch wire through channels for each panel.
    - Hardware:
      - Provide galvanized track for horizontal sliding gate, bolts, mortise-type locks (less cylinders) and all other required operating hardware, as shown on shop drawings and details.
      - All steel shall be hot dipped galvanized in sections, after fabrication.

- Iron Grating & Frame:
  - Shall be Neenah Foundry Co. #R-4999-AX Bolted Trench Drain of cast iron, as detailed or equivalent by Campbell or McKinley. Grate type "P" with Perma-Grip surface.
- Vehicle Access Gate:
  - Shall be of galvanized standard pipe as detailed on drawings with pipe cap ends welded on. All welds shall be ground smooth and assembly shall be hot-dip galvanized after fabrication.
- Chains:
  - Shall be galvanized and as detailed on drawings.
- Welding:
  - All welding shall conform to requirements of the Committee for Standard Tests for Welds of the American Welding Society. All welding shall be electric arc process. Welds exposed in finish work shall be filled out flush, ground and dressed. Welders for structural shall be certified.
- Inspection of Welding:
  - Inspection of all welding shall be done under the direct supervision of an approved and licensed welding inspector. Steel fabricator shall notify the welding inspector prior to and shall not commence any welding without the welding inspector present. The Agency Representative shall be furnished a report by the welding inspector verifying that the welds conform to the drawings and specifications. (See Inspector of Work - Section 01420.)

**END OF SECTION**



## SECTION 05100 – STRUCTURAL METAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC) latest Edition apply except as modified herein.

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC) latest Edition apply except as modified herein.

#### A. Related Work Specified Elsewhere:

Concrete Reinforcement: Section 03200.

Masonry Reinforcement: Section 04200.

#### B. Work Furnished but Installed by Others:

Furnish connections and connectors necessary for the completion of the work of other sections of these specifications.

#### C. Quality Assurance:

Material quality standards and testing procedures shall be in accordance with the American Society for Testing Materials, hereinafter referred to as ASTM. All ASTM standards and testing procedures shall be the latest requirements.

All fabrication and erection of steel work shall be in conformance with the requirements of the American Institute of Steel Construction (AISC).

All welding and built-up welded members shall conform to the requirements of the American Welding Society (AWS).

Tests and Inspections: See Section 01410.

Tests and Inspections shall be made by a testing laboratory approved by the Structural Engineer. The cost of sampling and testing shall be borne by the Agency.

One tension and one bend test shall be made for each size and shape of steel designated in the Test and Inspection Request Form.

Prepare and distribute test reports as required by Section 01410.

Additional tests of material shall be made when, and as directed by the Structural Engineer. Cost of these tests shall be borne by the Agency.

Inspection of welding designated on the Test and Inspection Request Form shall be made by an Inspector approved by the Structural Engineer who shall certify that the welding is in compliance with these drawings and specifications. The Contractor shall provide access to the work for inspection purposes, and shall notify the Inspector when work is to be performed. The cost of this inspection shall be borne by Agency.

#### D. Submittals:

Submit shop drawings of work specified herein as required under Section 01340.

Fabrication and/or erection prior to receipt of Structural Engineer's approval is at Contractor's sole risk. All shop and fabrication drawings shall be referenced to the applicable sections or details on the Contract Drawings. Shop drawings not so referenced will be rejected.

## II. PRODUCTS

### A. Materials:

All structural steel shall conform to the latest ASTM A36. Pipe columns shall conform to ASTM A53, Grade B pipe. Rectangular steel tubing shall conform to ASTM A501 and shall have a yield strength no less than 35 KSI. All bolts shall conform to ASTM A307.

**B. Fabrication and Manufacture:**

All steel shall be fabricated in accordance with Specifications of the AISC. All workmanship shall be done in a first-class manner.

All welding shall be done by the shielded arc method. All welders shall be properly qualified. Surplus metal shall be dressed off to smooth, even surfaces where welds are exposed to view. All welding electrodes shall conform to AWS E70XX.

**C. Painting:**

Steel work does not require shop painting.

**III. EXECUTION**

**A. Erection:**

Erection shall be in accordance with first class practices, members level, properly aligned and columns plumbed. The Contractor shall provide erection bracing of the steel work to ensure the safety and security of the structure in accordance with California State Safety Codes.

**END OF SECTION**

**SECTION 06100 – ROUGH CARPENTRY**

**I. GENERAL**

**A. Scope:**

- Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified and as necessary to complete the Contract, including, but not limited to these major items:
  - o Wood structural framing and partitions;
  - o Roof sheathing;
  - o Furring and stripping;
  - o Opening framing and curbs;
  - o Bridging, blocking, backing, nailers, ledger, bucks and grounds;
  - o Miscellaneous rough carpentry items as indicated and required for complete installation;
  - o All rough hardware.
  - o Pedestrian bridges and rails.

**B. Related Work Specified Elsewhere:**

- Concrete forms work: Section 03100.

**C. General Requirements:**

- Field Conditions. Verify drawing dimensions with actual field conditions. Inspect related work and adjacent surfaces.
- Notes. General notes on the drawings are part of this section.

**II. MATERIALS**

**A. Lumber**

Manufactured, graded and grade-marked in compliance with the following reference specifications and grading rules. Grades and species as hereinafter specified or noted on drawings.

<u>Use</u>	<u>Species</u>	<u>Grade</u>
Miscellaneous Nailing Strips And Blocks Embedded In Concrete Or Masonry	Douglas Fir Treated With Zinc Chloride	Grade Specified Above.

All items above, where used as exposed lumber, shall be of the grade specified but also "selected for exposed use."

**B. Rough Cut Lumber:**

All lumber referred to on the drawings as "rough cut" or "rough sawn" shall comply with the size and specifications for "full sawn" full dimension lumber, or "standard mill rough" lumber before surfacing four sides to net dimensions of standard finished lumber. Re-sawn or re-manufactured lumber from standard finished lumber sizes is not acceptable.

**C. Douglas Fir:**

Grade in compliance with one of the following:

- o "Standard Grading and Dressing Rules No. 16 for Douglas Fir, West Coast Hemlock, Sitka Spruce, Western Red Cedar", by the West Coast Lumber Inspection Bureau.
- o "1970 Grading Rules", issued by the Western Wood Products Association, Portland, Oregon.

**D. Plywood:**

U.S. Department of Commerce, Product Standard PSI-177, graded and grade-marked by the American Plywood Association.

**E. Bolts:**

Conform to ASTM A307, Grade A, square or hexagonal head, sizes and spacing as required by the drawings. All heads and nuts bearing on wood shall be fitted with washers.

Bolts, nuts and washers for use in locations subject to moisture, for outside use or in portions of the structure which are not completely enclosed, or elsewhere as specified or indicated: Galvanize in compliance with ASTM A153.

**F. Nails:**

Sizes and types indicated, specified or required for the purpose, in compliance with FS FF-N-105A. Unless specified otherwise, use galvanized or aluminum nails for nailing redwood.

Special Purpose Nails. As manufactured by the Independent Nail Corp., Bridgewater, MA, or similar and equal as manufactured by Philstone Nail Corp., Needham Heights, MA, or other as approved by the Agency Representative. Requirements for galvanizing or other types of non-corrosive coating as specified above.

"Screw-Tite" common spiral thread nails.

"Screw-Tite" hardened steel, knurled masonry nails (0.148"-0.177 dia.) masonry nails (0.250" dia.). Concrete stub nails (0.148" dia.).

Powder-actuated fasteners may be used only where specifically permitted hereinafter, or when subsequently approved, provided all available safety features and guards are used.

Use low velocity equipment, if adequate. Submit detailed list of equipment and type of fasteners for Agency Representative's approval prior to use.

**G. Timber Connectors:**

Refer to drawings.

**H. Miscellaneous Materials:**

As hereinafter specified.

**I. Lumber Seasoning:**

Air or kiln dry lumber of grades better than No. 1 before surfacing to a moisture content not exceeding 19%. Before incorporation of Douglas Fir No. 1 or lower grades into the work, allow all lumber to attain a state of equilibrium with the local atmosphere. Air season all lumber not less than 30 days before covering with finish materials.

If specifications for pressure treating state the maximum percentages of moisture content at the time of treatment, comply with those requirements.

**J. Pressure Treatment - Material in Contact with Concrete:**

Lumber in contact with concrete or masonry: Either Douglas Fir, Larch or Hemlock pressure treated in compliance with FS TT-W-5711. When treated members are cut to shape or size, perform such cutting or shaping before treatment. Where members are cut after treatment or countersunk for flush installation of bolt heads, paint the cut surfaces with two saturating coats of treating liquid before installation. Studs in contact with concrete floors shall be dipped in treatment solution to a height of 6'.

Accepted Treatments:

<u>Preservative</u>	<u>Applicable FS for Formula</u>	<u>Final Retention lbs./cu.ft.</u>
Chromated Zinc Chloride	TT-W-551	0.75
Wolman Salts	TT-W-573	0.35
Acid Cupric Chromate	TT-W-546	0.50
Chemonite	TT-W-571c	0.30

**III. EXECUTION**

**A. Carpentry Installation:**

Workmanship. Perform entire work in accordance with the best standards of practices relating to the trade and carefully plan and lay out the required work as required. Properly accommodate the work of other trades. Accurately saw-cut and fit lumber into the respective locations, true to line, grade, and level, as indicated or required, and permanently secure in proper position with spikes, nails, lag screws, bolts, hangers, or other fastenings to make the work substantial and rigid in all parts and connections.

Connections. Make connections between members tight, accurate and secure. Place fastenings without splitting wood; pre-drill when required. Drill bolt holes same size as bolt diameter. Drill holes for lag screws same size as thread root diameter; and counterbore, same depth and diameter as shank. Turn lag screws into place, do not drive. Provide bolts and lag screws with washers under every head and nut bearing on wood. Tighten bolts and lag screws at installation; carefully retighten just prior to closing in or at completion of project.

**END OF SECTION**

## SECTION 07120 – WATERPROOFING

### I. GENERAL

#### A. Scope of Work:

Provide waterproofing as indicated and specified, complete. Principal items of work include the following: Waterproofing walls below-grade.

#### B. Standards:

Manufacturer's specifications for installation shall be followed.

#### C. Types:

Exterior walls below grade. Apply Tremco "Tremproof 50", 60 mils thick, or Toch "Thio-Deck Liquid Membrane", or equal waterproofing membrane.

#### D. Workmanship:

Employ waterproofing applicator officially listed and approved by manufacturer of materials. Install work in strict accordance with manufacturer's directions for indicated conditions.

#### E. Preparation:

Surfaces. Clean, dry free of sharp projections, depressions, cracks, or other defects; cracks, voids, or holes in wall surfaces filled with cement grout to provide smooth and solid surfaces; inclines properly graded to outlets.

Inspection. Inspect base surfaces to receive work of this Section accompanied by Landscape Architect's representative and material manufacturer's authorized agents. Report any defective surfaces to Landscape Architect in writing. Starting installation of work constitutes approval and acceptance of base surfaces, and waiver of claim that base surfaces are defective as pertains to guarantee requirements.

### II. INSTALLATION

#### A. Application of Below Grade Membrane:

Apply primers, membrane courses and install expansion joints according to manufacturer's specifications.

### III. MATERIALS

Deliver materials in original packages bearing manufacturer's label.

#### A. Guarantee:

Furnish a written guarantee, form as stipulated in Section "Special Conditions", for a period of one year from date of substantial completion.

**END OF SECTION**

## SECTION 07900 – CAULKING AND SEALANTS

The provisions of the Standard Specifications for Public Works Construction (SSPWC) latest Edition apply except as modified herein.

### I. GENERAL

#### A. Scope:

This section contains general specifications pertaining to all weather-sealing and caulking throughout the project and becomes a part of all sections containing reference hereto, or where materials of the types specified in this section are required by the drawings.

#### B. General Requirements:

Guarantee. Provide written guarantee for all caulking and sealants against all defects of material or application for a period of two years after date of acceptance. All failures that may occur within this period due to defective application or materials shall, upon written notification of such failure, be repaired or replaced with proper materials and labor as approved by the Landscape Architect, at no additional cost to the City.

Submit to the Landscape Architect samples of various types (and colors where applicable) of materials specified, prior to delivery of materials to the job.

Deliver materials to the job in original unopened containers bearing manufacturer's name, product designation and date of manufacture.

Install proprietary materials specified herein in compliance with manufacturer's instructions. Send copies of manufacturer's instructions to Architect at least two (2) weeks before installation.

### II. MATERIALS

Use sealants of the following types and manufacture. Unless specified or directed otherwise, use materials to match color of adjacent materials. Where adjacent materials on each side of the joint are different colors, the Landscape Architect will select sealant colors. If the desired color is not available from one manufacturer, select proper color from another manufacturer. Use those sealants from the following list as appropriate for the application, per manufacturer's recommendations.

#### A. Incidental Materials:

Staining Characteristics. All joint filler, primers, or other materials used in conjunction with sealant shall be of such composition as to not cause staining of the sealant or the materials to which they are applied.

Compressible Joint Filler. Closed cell neoprene, plastic foam, or urethane, as recommended by the sealant manufacturer for use in conjunction with the sealant.

Primers. As recommended by the sealant manufacturer for uses in conjunction with the sealant for application onto the various types of materials to which the sealer is applied.

Cleaners, where required in lieu of primers. As recommended by the sealant manufacturer.

#### B. Material Types:

Type #1 - One part polysulfide, FS TT-S-00230C.

Elastoseal #230 by Pacific Polymers, 15081 Moran Street, Unit E, Westminster, California. Uniparmastic by Parr, Inc., distributed by C.R. Laurance Co., 720 Mateo Street, Los Angeles, California. PTI 747, by Protective Treatments of Dayton, Ohio.

Type #2 - Two parts polysulfide, FS TT-S-00227E.

Elastoseal #227 by Pacific Polymers, 15081 Moran Street, Unit E, Westminster, California. Parmastic by Parr, Inc., distributed by C.R. Laurence Co., 720 Mateo Street, Los Angeles, California. PTI 748, by Protective Treatments of Dayton, Ohio.

Type #3 - One part silicone sealant, FS TT-S-1543.

General Electric 1200 non-paintable, distributed by C.R. Laurence Co., 720 Mateo Street, Los Angeles, California.  
Dow Corning 780 and 781, Dow Chemical, Midland, Michigan.

Type #4 - Two parts silicone.

General Electric 1600, distributed by C.R. Laurence Co., 720 Mateo Street, Los Angeles, California.

Type #5 - Multi-part urethane sealant, FS TT-S-00227E, non-sag or pourable consistency, non-staining.

Elastothane 227 by Pacific Polymers, 15081 Moran Street, Unit E, Westminster, California 92683. PRC 270 by Products Research, 2900 Empire Street, Burbank, California.

Type #6 - Latex acrylic caulk for drywall and interior caulking.

Parr Latex Caulk by Parr, Inc., distributed by C.R. Laurence Co., 720 Mateo Street, Los Angeles, California.  
Elastoseal Latex by Pacific Polymers, 15081 Moran Street, Unit E, Westminster, California 92683.

### **III. APPLICATION**

Joint Filler. Accurately position within the joint to establish and control the uniform designated thickness of sealant.

Apply material with sufficient pressure to completely fill the void space and to assure complete wetting of contact area to obtain uniform adhesion. During application, keep tip of nozzle at bottom of joint, forcing sealant to fill from bottom to top. Finish joints smooth and flush with adjacent surface unless detailed to be finished below the surface.

Perform joint preparation, including cleaning and priming, in accordance with manufacturer's instructions.

Provide manufacturer's inspection of conditions prior to start of the work and initial supervision at the start of each application, in order to insure that any physical conditions which would result in defective work are properly corrected before materials are applied, that properly instructed personnel are available to do the work, and that proper procedures are being followed. Provide such inspection and supervision by qualified personnel. Report all unsatisfactory conditions existing at the time of inspection in writing to the Landscape Architect for correction before proceeding with the work.

Notify the manufacturer at least 72 hours prior to the time inspection is required.

Failure or refusal of the manufacturer to provide the inspection and supervision as required hereunder constitutes grounds for non-acceptability of materials manufactured by him even though such materials have been specified or approved.

**END OF SECTION**



## SECTION 09860 – ANTI-GRAFFITI COATINGS

### I. GENERAL

#### A. Summary:

- Section includes Graffiti Resistant Coatings
- Related Sections: Section 09900 - Painting: Applicable preparation and application requirements.

#### B. Submittals:

- Product Data

In accordance with the provisions of Section 01340, submit complete manufacturer's literature and specifications. Include complete lists of materials proposed for use, giving the manufacturer's name, product numbers, and product information sheets for each specified item (four copies).

- Samples

When specified system requires that the graffiti resistant coating be applied over a paint color, submit sample of system showing each coat. The architect will use this sample to approve color.

- Application and Safety

Submit the manufacturer's recommended methods of installation, including limitations, safety and environmental cautions, material safety data sheets, and application rates.

#### C. Quality Assurance:

- Qualifications

- o Use products by manufacturers regularly engaged in manufacturing of this product and with a history of at least three successful applications within the last three years.
- o Use skilled workers who are thoroughly trained and experienced and who are complete familiar with the specified requirements and methods.

- Regulatory Requirements

- o Comply with applicable codes and regulations. All products must comply with current VOC requirements for the air quality management district where application takes place. Where those requirements conflict with this Specification, comply with the more stringent provisions.

- Field Samples

- o Apply the system as specified in a designated area in accordance with Section 01340. This will serve as an indication that applicator can provide acceptable results and will be used as the standard for the rest of the work.

#### D. Delivery, Storage, and Handling

- Acceptance at Site

Materials shall be delivered to Project in original containers, complete sealed and bearing name of coating contained therein.

- Storage and Protection

Use all means necessary to protect the materials of this Section before, during, and after installation.

#### E. Project Conditions

- Project Conditions

Do not apply coatings when surface temperature is more than 90 degrees F in the shade, or when the relative humidity is more than 70 percent. Do not apply coating when adverse weather conditions are imminent.

## II. PRODUCTS

### A. Manufacturers

Prosoco Blok-Guard & Graffiti Control II (800) 255-4255 “or equal” apply per manuf. specifications.

### B. Materials

#### Clear Finish Over Paint Color

- Primer as recommended for substrate. Finish coat shall be 100% acrylic in composition.
- Clear Finish. A two component aliphatic urethane polyester based mixture.

#### Clear Finish Over Concrete, Brick, and Stone

- Waterborne sealer with an active solids content of 6% ASTM D 5090.
- Clear Finish. A water based- silicone emulsion. Prosoco Blok-Guard & Graffiti Control II or Equal. Clean surfaces and apply per manuf. specs. Supply Defacer Eracer Graffiti Wipe or Enviro Klean SafStrip during contractor maint. Period and additional material for City use after maint. period.

#### Clear Finish Over Block Masonry Types

- Waterborne sealer with an active solids content of 6% ASTM D 5090.
- Clear Finish. A water based- silicone emulsion. Prosoco Blok-Guard & Graffiti Control II or Equal. Clean surfaces and apply per manuf. specs. Supply Defacer Eracer Graffiti Wipe or Enviro Klean SafStrip during contractor maint. Period and additional material for City use after maint. period.

#### Colors and Quantities

- Check with manufacturer as to the ability to match selected colors.
- Product may not be available in small quantities
- Finish paint colors containing organic yellow colorants will bleed. Avoid selecting these colors.

## III. EXECUTION

### A. Examination:

- Verification of Conditions
  - Prior to the commencement of the Work of this Section, examine the installed work of other trades and verify that all such work is completed or properly corrected to the points where this installation may properly commence. Commencement of work will indicate that applicator has accepted the conditions.

### B. Preparation:

- Protection
  - Protect and cover finished work and materials of all other traded that may be affected by work of this Section during coating application. Protect all surrounding vegetation and adjacent areas from overspray.
- Surface Preparation
  - Substrates to receive sealers or primers prior to graffiti resistant coatings must be cleaned of all dirt, bondbreakers, and all other foreign materials that will adversely affect the required appearance of the finished product.
  - Power wash all surfaces in accordance with manufacturer's recommendations.

### C. Application:

- General
  - Apply primers, paints, and coatings in strict accordance with the manufacturer's recommendations as accepted by the Agency.
  - The number of coats specified is the minimum that will be applied. Apply additional coats when undercoats, stains, or other conditions show through final paint coat, until paint film is of uniform color and appearance.
  - When additional coats of the graffiti resistant coating are required, allow no more than 48 hours between coats.
  - Apply a total dry film thickness of not less than 1.2 mils for primers and paint finishes and not less than 1.5 mils for graffiti resistant coatings.

#### **D. Cleaning, Touch-Up, and Refinishing**

- General
  - o Carefully remove all splatters, spots, and blemishes caused by work of this Section.
  - o Upon completion of the work, remove all rubbish, cans, and accumulated materials. All areas must be left in a clean and orderly condition.
  - o Runs, sags, misses, holidays, stains, and other defects in the coated surfaces, including inadequate coverage and mil thickness will be satisfactorily touched-up or refinished.
- Removal of Graffiti
  - o Defacer Eracer Graffiti Wipe or Enviro Klean SafStrip by Prosooco
- Curing of Polyurethane Enamels.
  - o Seven to ten days curing time required in order for coating to resist graffiti

#### **E. Finish Schedule:**

- Stucco, Concrete, Brick (Clear semi gloss over Paint)

One Coat            EFF-STOP, Concrete Sealer (W 709)  
One Coat            EVERSIELD, Exterior Masonry Finish (W 701)  
One Coat            Prosooco Blok-Guard & Graffiti Controll II or Equal.

- Block Masonry Types (Clear Gloss over Paint)

Filler                BLOCFIL, Prepared Block Filler, Latex (smooth) (W 305)  
One Coat            EVERSIELD, Exterior Masonry Finish (W 701)  
One Coat            Prosooco Blok-Guard & Graffiti Controll II or Equal.

- Stucco, Concrete, Brick, and Stone (Clear Gloss Finish)

One Coat            OKON, Masonry Sealer (W 1)  
One Coat            Prosooco Blok-Guard & Graffiti Controll II or Equal.

- Block Masonry Types (Clear Gloss Finish)

One Coat            OKON, Masonry Sealer (W 2)  
Two Coats          Prosooco Blok-Guard & Graffiti Controll II or Equal.

- Stucco, Concrete, Brick (Pigmented Finish)

One Coat            EFF-STOP, Concrete Sealer (W 709)  
One Coat            Prosooco Blok-Guard & Graffiti Controll II or Equal.

- Block Masonry Types (Pigmented Gloss Finish)

One Coat - Filler    BLOCFIL, Prepared Block Filler, Latex (smooth) (W 305)  
Two Coats          Prosooco Blok-Guard & Graffiti Controll II or Equal.

**END OF SECTION**

## SECTION 09900 – PAINTING

### I. GENERAL

The provisions of the Standard Specifications for Public Works construction (SSPWC) latest edition apply except as modified herein.

#### A. Scope:

Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified, and as necessary to complete the Contract, including, but not limited to, these major items:

- Preparation of surfaces to be painted;
- Painting all exterior metal, including handrails, steel light poles, steel bollards, except as otherwise specified;
- Back priming of interior millwork, prior to installation;
- Painting black that portion of the ductwork interior which is visible through the grilles;
- Painting interior wood, ferrous metals and gypsum wallboard in the areas scheduled to be painted;
- Painting exposed mechanical and electrical items in areas to be painted;
- Painting of non-ferrous metals, plated or factory finished items, specifically noted to be painted or when such items occur as accessories or appurtenances to units otherwise required to be painted;
- Painting exterior mechanical equipment, and mechanical items on the roof or building exterior; Painting exterior wood.
- Sealing masonry walls.

#### B. Related Work Specified Elsewhere:

- Prime coat painting of structural steel;
- Prime coat painting of miscellaneous metals;
- Prime coat painting of metal doors and frames;
- Painting of non-ferrous metals, unless specifically noted or shown as an integral part of a unit otherwise requiring painting;
- Factory finished acoustic ceiling and exposed grid.
- Field finish of wood parquet flooring.

#### C. Surfaces Not To Be Painted:

- Aluminum with anodized finish, and stainless steel;
- Finish hardware, except hardware with USP finish; Acoustical ceilings;
- Flooring;
- Electrical fixtures and receptacles, in general (refer to Electrical Section);
- Toilet compartments, accessories, and urinal screens.
- All items with complete factory finish, except exterior mechanical equipment as specified hereinbefore;
- Stucco finish;
- Other surfaces as indicated on the drawings.

#### D. General:

- Field Conditions. Verify drawing dimensions with actual field conditions. Inspect related work and adjacent surfaces. Report to the Engineer all conditions which prevent proper execution of this work. Deliver materials to the job in unopened containers bearing manufacturer's name and product designation corresponding to designation on material list.
- Colors and Gloss. As selected and approved by the Landscape Architect.
- Submit samples, in accordance with Division I, using materials approved for the project, of each color and paint finish, selected by the Landscape Architect. Prepare duplicate samples, 8 2" x 11" showing successive coatings. For transparent and stained finishes, prepare samples on species and quality of wood used in the work.

- Environmental Conditions. Apply no paint in rain, fog or mists, when the temperature is below 45 F. Insure proper ventilation during all interior painting.
- Hardware. Insure that hardware is removed before painting is started and replaced only when paint finishes are thoroughly dry. Fitting, removal and reinstallation of finish hardware is specified in Finish Carpentry and Millwork Section.
- Coats. The number of coats specified is the minimum number acceptable. If full even coverage is not obtained with the specified number of coats, apply at no extra cost such coats as are necessary to produce the required finish, as approved by the Engineer.
- Protection. Protect floors and all adjacent surfaces from paint smears, spatters or droppings. Use drop cloths to protect floors. Cover fixtures and remove hardware not to be painted. Mask off areas where required.

## II. MATERIALS

### A. Approved Products:

- Selected materials from the Architectural Products line of Devoe, Dunn-Edwards, Pratt & Lambert, Sherwin-Williams, Frazee, Sinclair or other recognized manufacturer as approved by the Landscape Architect. Except for specialty items or as otherwise specified, all materials shall be by one manufacturer.
- Review the paint and finish schedules with the Landscape Architect, and submit complete list of materials proposed for the work, for the Landscape Architect's approval.
- Employ coats and undercoats for all types of finishes in strict accordance with the recommendations of the manufacturers of the finish paints used.
- Materials for undercoats and finish coats of paint shall be ready-mixed and shall not be changed, except thinning of undercoats (when required), reinforcing, or coloring, any of which shall be in strict accordance with the recommendations of the manufacturers.

### B. Conditions of Surfaces:

- All surfaces to receive paint shall be clean, dry smooth, and dust free before application of any material. Prepare surfaces as follows:
- Wood. Sand smooth and remove dust. Fill open joints, cracks nail holes and other pits or depressions flush and smooth with putty or wood dough after priming. Color putty to match finish paint coat. Touch up knots or sap streaks with shellac or other approved sealer before priming.
- Galvanized Metal. Prime all surfaces, except where to be embedded in concrete, masonry or roofing; allow to dry before installation.
- Ferrous metal. Prime all surfaces with ferrous metal primer.
- Concrete Block. Concrete block should be laid plumb and true with neatly finished joints. All excessive mortar fins at joints should be stoned off and any large holes filled by the masonry contractor. Block should be air blown free of dirt and dust to help create a full bond.

## III. APPLICATION

- Apply material evenly, free from sags, runs, crawls, holidays or defects. Mix to proper consistency, brush out smooth, leaving minimum of brush marks, enamel and varnish uniformly flowed on.
- Apply paint by brushes, roller or spray.
- Tint all pigmented undercoats to approximately same shade as final coat. Perceptibly increase the depth of shade in successive coats.

- Allow each coat to thoroughly dry before succeeding coat application. For oil paints, allow at least 48 hours between coats of exterior work, except where otherwise recommended by the manufacturer.
- Finish all four edges of doors with the same number and kind of coatings as specified for their main surfaces. Where openings into rooms having different finishes, finish door edges as directed.
- Do not paint factory finished items unless specifically directed. Paint visible surfaces of metal ducts and vents.
- Finish mill or shop primed items with materials compatible with prime coat.
- Mechanical and electrical work in exposed areas: Include that portion of ductwork or plenum spaces, the interior of which is visible through the grilles.
- Shop primed metal surface of all mechanical and electrical equipment shall receive two finish coats of paint to match adjoining wall or ceiling surfaces. Prime coat, in addition to above, on all unprimed surfaces. Principal items of this work include interior of hose cabinets, air grilles, ceiling diffusers, electric panels, telephone panels, access panels, conduit outlet and pull boxes, ducts and pipes.
- All other mechanical equipment exposed to view, such as covered and uncovered piping and ductwork, pumps, compressors, air conditioning equipment, tanks, etc., shall be painted as specified herein, where not supplied finished under other sections.
- Miscellaneous Painting. Surfaces to be painted and not specifically described herein, shall be painted with a product specifically manufactured or prepared for the material and surface; prime coat and two finish coats.
- Upon completion, remove all rubbish caused by this trade. Remove spots from floors, glass, and other surfaces. Leave premises in a clean and orderly condition.
- At the completion of other trades, touch up damaged surfaces as required.

#### **IV. PAINTING SCHEDULE**

##### **A. Finish No. 1: Exterior and Interior Wood.**

Two coats Olympic Stain.

##### **B. Finish No. 2: Exterior and Interior Metal including Metal Doors and Frames.**

First coat: (not required where metal is shop primed)

Dunn-Edwards BLOC-RUST - rust inhibitive primer-Red 43-4, or Dunn-Edwards GALV-ALUM - anti-corrosion primer-White QD 43-7.

Second coat: Dunn-Edwards COMPO-EXTERIOR primer/undercoater 42-1. Third coat: Dunn-Edwards PERMAGLOSS ACRYLIC gloss enamel W960.

##### **C. Finish No. 3: All Smooth-Face Interior Concrete Block And Interior Drywall.**

100% solids thermosetting polyester, coating. (See Attachment #1 this section.)

##### **D. Finish No. 4: All Exterior Concrete Block At Restroom, And All Shelters.**

Anti-Graffiti Coating System for Exterior Concrete Block (see Attachment #2 this section.)

##### **E. Preparation:**

Surfaces shall be prepared by following procedures standard in the painting industry. They shall be clean, sound, and free of grease or other foreign matter.

**V. ATTACHMENT #1 (FINISH PAINTING)**

**- FINISH NO.: 100% SOLIDS THERMOSETTING POLYESTER COATING**

**A. General:**

Furnish all materials, tools, equipment, labor and services required to complete the special coatings work as indicated and as specified. Principal items of work include, but are not limited to, the following: Vitreous Wall Coatings

**B. General Requirements:**

Verify dimensions on the drawings, with field conditions at the start of the work and check continuously during construction. Accept responsibility for inaccuracies built into the work.

Inspect related work and surfaces; report in writing to the Landscape Architect those conditions which prevent proper provisions of this work. Any required removal, repair or replacement of this work caused by unsuitable conditions shall be done at no additional cost to the Owner.

Delivery and storage: Deliver all materials in their original packages with seals unbroken, with manufacturer's name and product identification clearly legible on each package. Store as to preclude entry of moisture or damage from any source.

Colors shall be chosen by Landscape Architect.

Samples. After color selection, submit samples in duplicate of the material specified in the colors chosen, for approval by the Landscape Architect. Mark clearly to show manufacturer's name and product identification.

Manufacturer. Specification data is from VITROCEM as manufactured by Bithell, Inc., 1004 E. Edna Place, Covina, CA 91724. Products of other manufacturers will be acceptable, provided that, in the opinion of the Landscape Architect all essential features such as materials, and finish are equal to the products specified.

**C. Surface Preparation:**

General. It is the responsibility of this Contractor to inspect the surfaces to be coated, to see that each prior trade has left the surface in a proper condition to receive the work of this Contractor.

Mask to protect uncoated adjacent surfaces. Repair minor surface damage.

Check for moisture on excessive alkali and correct as required.

**D. Coating Materials:**

- 1st Coat: Polyester Filler
- 2nd Coat: Polyester Enamel
- 3rd Coat: Clear Water White Poly-Glaze

**E. Application:**

Apply the first coat of Polyester Filler by roller at a spreading rate of 75 to 100 square feet per gallon or as required to fill all voids in the masonry.

Apply the second coat of Poly Base coat by roller at a spreading rate of 150 to 200 square feet per gallon.

Apply the third coat of Clear Water White Poly-Glaze by spray at a spreading rate of 250 square feet per gallon.

Material Preparation. Poly Coatings require the addition of catalyst just prior to use. Atmospheric conditions affect the curing. Follow manufacturer's printed directions regarding catalyst concentrations at varying temperatures.

**F. Manufacturer's Supervision and Guarantee:**

All poly coatings shall be done under the supervision of the manufacturer, using applicators thoroughly trained and approved by the manufacturer.

Provide a two year written guarantee against defects in material or workmanship.

**G. Manufacturer's Recommendations and Samples:**

Prior to beginning application of the coating system, the manufacturer must be present to examine the surfaces to be coated. A detailed specification, application instructions, and samples of the system to be used must be submitted by the manufacturer, for approval by the Landscape Architect.

**VI. ATTACHMENT #2 (FINISH PAINTING)**

**- ANTI-GRAFFITI COATING SYSTEM FOR EXTERIOR SLUMPED BLOCK (CLEAR FINISH)**

**A. General:**

Furnish all materials, tools, equipment, labor and services required to complete the special coatings work as indicated and as specified. Principal items of work include, but are not limited to, the following:

Vitreous Wall Coatings

**B. General Requirements:**

Verify dimensions on the drawings with field conditions at the start of the work and check continuously during construction. Accept responsibility for inaccuracies built into the work.

Inspect related work and surfaces; report in writing to the Landscape Architect those conditions which prevent proper provisions of this work. Any required removal, repair or replacement of this work caused by unsuitable conditions shall be done at no additional cost to the Owner.

Delivery and storage. Deliver all materials in their original packages with seals unbroken, with manufacturer's name and product identification clearly legible on each package. Store as to preclude entry of moisture or damage from any source.

Samples. After color selection, submit samples in duplicate of the material specified, for approval by the Landscape Architect. Mark clearly to show manufacturer's name and product identification.

Manufacturer. Specification data is from VITROCEM as manufactured by Bithell, Inc., 1004 E. Edna Place, Covina, CA 91724. Products of other manufacturers will be acceptable, provided that, in the opinion of the Landscape Architect, all essential features such as materials and finish are equal to the products specified.

**C. Surface Preparation:**

General. It is the responsibility of this Contractor to inspect the surfaces to be coated, to see that each prior trade has left the surface in a proper condition to receive the work of this Contractor.

- Mask to protect uncoated adjacent surfaces.
- Repair minor surface damage.
- Check for moisture or excessive alkali and correct as required.

**D. Coating Materials:**

Coating System for Exterior Slumped Block.

- 1st Coat: Clear Polyester glaze.
- 2nd Coat: Clear Polyester glaze.
- 3rd Coat: Clear Anti-Graffiti glaze.

**E. Application:**

Apply the first coat by roller at a spreading rate of 75 square feet per gallon.

Apply second coat by roller at 125 square feet per gallon.

Apply the third coat of Clear Water White Anti-Graffiti Glaze by spray at a spreading rate of 200 square feet per gallon.



Material Preparation. Polyester coatings require the addition of catalyst just prior to use. Atmospheric conditions affect the curing. Follow manufacturer's printed directions regarding catalyst concentrations at varying temperatures.

**F. Manufacturer's Supervision and Guarantee:**

All Poly Coatings shall be done under the supervision of the manufacturer, using applicators thoroughly trained and approved by the manufacturer.

Provide a two year written guarantee against defects in material or workmanship.

**G. Manufacturer's Recommendations and Samples:**

Prior to beginning application of the coating system, the manufacturer must be present to examine the surfaces to be coated. A detailed specification, application instructions and samples of the system to be used must be submitted by the manufacturer, for approval by the Landscape Architect.

**END OF SECTION**

## SECTION 13120 – PRE-ENGINEERED STRUCTURE

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC) apply except as modified herein.

#### A. Scope:

Furnish and install pre-engineered shade structure.

Furnish all structural design and calculations necessary to obtain building permit. Obtain and pay for required plan checks, permits.

Furnish all erection and installation details.

#### B. Related work Specified Elsewhere:

Grading: Section 02200.

Concrete: Section 03310.

#### C. Coordination:

The coordination of erection of the pre-engineered structure and preparation of site and foundation work is the responsibility of the General Contractor.

#### D. Acceptable Manufacturers:

Polygon or approved equal.

#### E. Submittals and Approvals:

Submit six (6) copies of technical data, layout and elevations of proposed structure.

Upon approval of building type and layout, submit structural design drawings, foundations, and structural calculations of sufficient structural detail for plan check to obtain building permit.

Upon obtaining building permit, submit full manufacturer's color range to landscape architect for color selection. A contrasting accent color shall be used on fascia and door frames as selected by the landscape architect.

### II. PRODUCTS

The pre-engineered structure shall be as called out on the drawings.

The stamp of a professional engineer properly registered in the State of California shall appear on all design and erection documents.

#### A. Foundations:

Foundations shall be adequately designed by a registered engineer; the cost of which will be paid by the general contractor.

Anchor butts shall be supplied by the general contractor and installed as specified by the manufacturer's standard anchor bolt layout drawings.

**END OF SECTION**

## SECTION 16010 – ELECTRICAL

### I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC) apply except as modified herein.

#### A. SCOPE OF WORK:

- Section related: 16500 – Exterior Athletic Lighting
- Furnish all labor, materials, equipment, transportation and service required to install complete and put in operation the work of this section as shown on the drawings and in accordance with these specifications.
- The work of this section shall include, but not be limited to, the following principal items:
  - Detail arrangements with electric utility company and telephone company, and verification of exact locations, points of connection to service; facilities not furnished by utilities, and service charges levied by them to make service available to the project.
  - Temporary service.
  - Excavation and backfill as required for this division.
  - Manholes, handholes and pull boxes.
  - Complete 480Y/277 volt, 3-phase, 4-wire system and 208Y/120 volt, 3 phase, 4- wire system for power and lighting; and 240/120 volt, 1-phase, 3-wire system for receptacles, lighting and small power requirements.
  - Switchboards and branch circuit panelboards.
  - Sports field lighting system.
  - Parking area and walkway/security lighting.
  - Security/surveillance system.
  - Lighting control system.
  - Power and control wiring for the scoreboards.
  - Power for the restroom/concession building.
  - Power for the booster pumps and irrigation controllers.
  - Wiring devices.
  - Conduit and conductors.
  - Dry type transformers.
  - Lighting fixtures, poles and concrete foundations.
  - Telephone and signal conduit system.
  - Low voltage system conduits.
  - Grounding system.
  - Tests.

- Guarantee.

**B. WORK NOT INCLUDED IN THIS SECTION:**

Owner furnished equipment.

**C. ORDINANCES AND REGULATIONS:**

- All work under this division shall comply with the most rigid requirements of the latest editions of the California Electrical Code; the California Administrative Code; Title 24, State Building Standard; Part 3, Basic Electrical Regulations; and all local codes.
- In any instance where the Contractor shall violate any ordinance or rule, he shall immediately correct the installation, and shall be responsible for any damage and expense arising there from.
- Nothing in these specifications shall relieve the Contractor from full compliance with the applicable portions of any of the above regulations having jurisdiction pertaining to work being installed under this section.

**D. STANDARDS:**

- Construction and testing of equipment shall comply with the latest applicable standards of the following:
  - American National Standards Institute (ANSI)
  - American Society for Testing and Materials (ASTM)
  - California Building Code (CBC)
  - California Building Energy Efficiency Standards (Title 24)
  - California Electrical Code (CEC)
  - California Green Building Standards Code (CGBSC)
  - Illuminating Engineering Society (IES)
  - Institute of Electrical and Electronic Engineers (IEEE)
  - Insulated Power Cable Engineer Association (IPCEA)
  - National Electrical Contractor Association (NECA)
  - National Electrical Manufacturer's Association (NEMA)
  - National Fire Protection Association (NFPA) Underwriter's Laboratories, Incorporated (UL)
- Wherever standards are referred to in this specification, the latest edition in effect during the bidding shall govern. All work shall conform to NECA "Standards of Installation" as a minimum.
- Permits and Inspections: The Contractor shall obtain and pay for all permits and inspections required for the work by all legally constituted authorities having jurisdiction.
- Certificates of all such permits and inspections shall be delivered to the Owner's representative.
- Examination of Drawings and Site: Each bidder shall carefully study all drawings and specifications pertaining to the work. If any of the work as laid out, indicated or specified, is contrary to, or conflicts with any local, city, state, or national ordinances or regulations, the same shall be reported to the Owner before submitting his bid, who will then issue instructions as to procedure. Each bidder shall carefully examine the project site, and compare the drawings with the existing conditions. By the act of submitting a bid, each bidder shall be deemed to have made allowances therefore in preparing his bid.
- Verification of Dimensions: Before proceeding with any work, the Contractor shall carefully check and verify all locations, dimensions, sizes, etc. and shall assume full responsibility for the fitting-in of his equipment and materials to other parts of the equipment and to structures. Where apparatus and equipment have been indicated on the drawings, dimensions have been taken from typical equipment of the indicated type. The Contractor shall carefully check the drawings to see that the equipment he contemplates installing will fit into the spaces provided and not conflict with proposed uses or activities.

#### **E. LOCATIONS:**

- The location of all conduit, wiring, apparatus and equipment indicated on the drawings is approximate only, and shall be adjusted to meet site conditions and not be in conflict with proposed site improvements, and to meet architectural and structural conditions required, and as approved by the architect. Prior to rough-in, minor adjustments to outlet locations may be made without additional compensation. Field verify all rough-in dimensions prior to conduit installation.
- All conduit, wiring, apparatus and equipment shall be installed in a manner and in locations avoiding all obstructions, preserving headroom, and keeping openings and passageways clear. Changes shall be made in locations of conduit, wiring, equipment, and materials which may be necessary in order to accomplish this. The drawings are essentially diagrammatic to the extent that many offsets, bends, special fittings and exact locations are not indicated. Carefully study the drawings and premises in order to determine the best methods, exact locations, routing, building obstructions, etc., and install all apparatus and equipment in the available locations.

#### **F. RECORD DRAWINGS:**

- The Contractor shall keep at the job site an accurate dimensioned record of the "as-built" locations of all buried conduits and ducts. At the completion of the project, such "as-built" drawings shall be transmitted to the City/Owner.

#### **G. SUBMITTAL DATA:**

- Shop drawings, material lists, and plates and brochures, as required by the specifications, shall be prepared and submitted to the City/Owner for review in accordance with the requirements of Division 1. No work indicated on any shop drawing shall be started until such drawings have been reviewed and approved.
- Submit complete brochures giving names of manufacturers and catalog numbers, trade names, the technical data, and requested information for each item to be furnished. Submit shop drawings and detail description of items that are not manufactured and must be specifically fabricated, including wiring diagrams.
- Submittals are required on every item to be furnished.
- Submittals shall be bound in sets, between covers, and each set shall be identical.
- Each item in submittals shall be identified as to fixture type, panel identification, specification section, etc.
- The Contractor shall review all shop drawings and submittals, prior to submittal, for compliance with the specification. The submittal package shall be stamped and signed by the Contractor indicating his prior review, and certification of compliance with the specification.

#### **H. DESCRIPTIVE NAMES:**

- Where the name of a selected manufacturer of equipment, fixtures, or material is specified, the proposal of the Contractor shall be based on the use of the named product, or the equivalent product of manufacturers listed. No substitutions will be permitted.

#### **I. VALUE ENGINEERING:**

- Cost reduction proposals initiated and developed by the Contractor causing any changes in the drawings, designs, specifications, or work of other trades, shall be presented for consideration within seven (7) working days of award of contract.
- Cost reduction proposals shall contain the following minimum information for each item proposed:
- A description of the difference between the existing contract requirements and the proposed change, and the comparative advantages and disadvantages of each;
  - An itemization of the requirements of the contract which must be changed if the proposal is adopted;
  - An estimate of the reduction in performance costs, if any, that will result from the adoption of the proposal taking into account the costs of implementation by the Contractor (including the amount

attributable to subcontractors and engineers for design changes, change orders, and evaluation of proposal);

- A prediction of any effects the proposed change would have on other costs to the Owner, such as costs of maintenance and operation;
- A statement of the time by which a change order adopting the proposal must be issued so as to obtain the maximum cost reduction during the remainder of this contract, noting any effect on the contract delivery schedule.

**J. MATERIALS AND WORKMANSHIP:**

- All material, appliances, and equipment shall be new and of the best grade of the respective kind, free from all defects and of the make, brand and quality specified.
- Materials for similar use shall be of the same type and manufacture.
- The current or newest production model of equipment as determined by the manufacturer's most recent published literature shall be furnished even though an obsolete model may be specified and stocked.
- Each major component of equipment shall have the manufacturer's name, address, and catalog number on a plate securely affixed in a conspicuous place.
- No items of material shall be installed for any purpose, or in any manner not recommended by the manufacturer.

**K. OPENINGS, CUTTING AND PATCHING:**

- The Contractor shall cooperate with all trades in providing information for openings required in the structure for construction of his work.
- The Contractor shall, at a time in advance of the work, verify the openings as shown on the Architectural and Structural drawings. If the work of this division requires such, he shall furnish new instructions as to his requirements for these openings, subject to approval by the Architect.
- Drilling, cutting and patching required by the Contractor's work shall be the responsibility of the Contractor.

**L. EXCAVATION AND BACKFILL:**

The Contractor shall do all excavation and backfill required to install his work, both inside and outside. All excavation and backfill shall be in accordance with the earthwork sections of the specification. Excavation shall be of proper depth and width to install the required conduits, ducts, or structures.

**M. BUILDING FOOTING CLEARANCES:**

- Under no circumstances shall conduit or ducts be run through footings. They shall cross below footings or through sleeves above footings. Those running parallel to footings shall be installed with minimum clearances required by the governing codes.

**N. CLEANING:**

- All exterior surfaces of exposed equipment and materials shall be thoroughly cleaned of all dirt, cement, plaster and other debris.
- All finished surfaces of equipment furnished under this section found to be damaged, shall be refinished without additional cost to the satisfaction of the City/Owner.

**O. PROTECTION OF FINISH:**

- The Contractor shall provide means for and shall fully protect all finished parts of the materials and equipment against damage from whatever cause during the progress of the work, and until final completion. All materials and equipment in storage and during construction shall be covered in such a manner that no finished surface will be damaged or marred, and all moving parts shall be kept clean and dry.

**P. CLEANUP:**

- All work areas shall be policed daily. Upon completion of work and at other times during the progress of the work, the Contractor shall remove all surplus materials, rubbish, and debris resulting from the work, and shall leave the entire involved portions of the site, insofar as the work of this section if concerned in a neat, clean, and acceptable condition as approved by the City/Owner.

**Q. GUARANTEE:**

- Should any trouble develop in the electrical installation within one year from date of acceptance of the project, due to faulty or inferior material, or workmanship, the trouble shall be corrected by the Contractor without expense to the City/Owner.

**R. SERVICE:**

- The Contractor shall provide for the utilities connections as shown on the drawings.

**S. SEISMIC REQUIREMENTS:**

- Brace electrical systems and equipment to withstand lateral and vertical forces that result from earthquake.
- Anchor all equipment, switchboards, transformers, panelboards and similar items by securely bolting them in place to the building structure. Brace free standing gear to wall or ceiling per manufacturer's recommendation. Provide vibration isolators with seismic snubbers under transformers. Provide bolts, anchors and bracing to withstand acceleration of 0.5 standard gravity.

**T. TEMPORARY SERVICE:**

- The Contractor shall make all arrangements for, and install the necessary provisions for temporary electrical construction power, sized as required.

**U. FLASHING:**

- Wherever conduits extend through roof, furnish and install galvanized steel flashings consisting of a #24 gage roof jack and a flashing collar soldered or brazed to conduit and covering top of roof jack. Roof jack shall extend not less than 6" out on roof and up conduit at least 8". Coordinate installation of flashing with roofing installation to permit flanges to be installed between roofing plies.

**II. MATERIALS**

**A. SWITCHBOARDS:**

- Furnish and install the power switchboard as specified and shown on the electrical drawings.
- The switchboard shall be NEMA Class I, NEMA 3R enclosure, dead front, completely metal enclosed, self supporting independent of wall supports, of the required number of vertical sections, bolted to form one rigid switchboard incorporating switching and protective devices of the number, rating and type as shown on the drawings, with the necessary interconnections, instrumentation, and control wiring. Switchboard construction shall be of the frame type, using die formed, welded and bolted members. The sides, top and rear shall be covered with removable screw on plates small enough to be handled by one person. All plates shall be fabricated from code gauge steel. Ventilation openings shall be furnished where required.
- The bus shall be copper of sufficient size to limit the temperature rise to 55 C, above an ambient of 35 C, and adequately braced to withstand mechanical forces exerted during short circuit conditions. All connections shall be tightly bolted.
- Provisions shall be provided for future extension. A ground bus shall run the full length of the board, with a lug secured to each vertical section.
- Small wiring, necessary fuse blades, and terminal blocks within the switchboard shall be furnished when required. All groups of control wiring leaving the switchboard shall be provided with terminal blocks with suitable numbering strips.

- Switchboard shall be provided with adequate lifting means and shall be capable of being rolled or moved into installation position, and bolted directly to the floor without the use of floor sills.
- Each switching and protective device shall be provided with visible means of "on-off" identification.
- All exterior and interior steel surfaces shall be properly cleaned and finished with manufacturer's standard finish. The finished paint shall be of a type to which field applied paint will adhere.
- All vertical sections shall align front and rear.
- The internal components, shall be removable from the front, and shall be group mounted with the necessary current device line and load connections front accessible.
- Main horizontal busses shall be braced for short circuit stress up to 65,000 amps symmetrical, and shall be accessible.
- Vertical sections shall be completely factory assembled, wired and tested before delivery, and shall conform to UL, NEC, and NEMA standards.
- Circuit breakers shall be bolt-on, molded case type. Each pole shall provide inverse time delay overload protection, and instantaneous short circuit protection by means of a thermal- magnetic element. Minimum interrupting ratings shall be as indicated on the drawings.
- Breakers shall have toggle type handles, be quick make, quick break, mechanically trip free from the handle to prevent being held closed against short circuits, and abnormal current:
  - Tripping shall be visually indicated by the handle automatically assuming a position between the manual "on-off" positions.
- Engraved laminated bakelite plates shall be furnished identifying each circuit. Submit engraving schedule for approval.
- NEMA-3R type enclosure shall be installed in outdoor locations.
- Switchboards shall be as manufactured by Square D or General Electric.

**B. PANELBOARDS - GENERAL:**

- Furnish and install panelboards as indicated on the drawings. Panelboards shall be surface or flush mounted as indicated, and of the voltage rating indicated on the drawings, or in the panel schedules.
- Panelboard bus structure, copper, main lugs, and main breaker, if specified, shall have current ratings as specified on the drawings, or on the schedules. Ratings shall be as determined by heat rise in accordance with UL Standard 67, and not in accordance with bus dimensions. Bus connections shall be sequential. Main lugs, or main circuit breaker, and the end of the bus structure shall be completely barriered.
- The panelboard interior assembly shall be dead front with the panelboard front removed. It shall be possible to change branch circuit load connections without personnel exposure to any line side bussing, or line terminals. Cabinets equipped with doors shall have a spring latch and tumbler lock on door of trim. Doors over 48" long shall be equipped with three point latch and vault lock. All locks on project shall be keyed the same. Fronts shall be code gauge steel. Steel shall be full finished with rust inhibiting primer, and baked enamel finish.
- All circuit breakers shall be ambient compensated, thermal magnetic type, with common trip mechanism for multi-pole type, bolted connections and with the number of poles, voltage, type and interrupting ratings indicated.
- Circuit breakers shall be arranged in the panels so that the breakers of the proper trip settings and numbers correspond to the numbering in the panel schedules on the drawings. Circuit numbers of breakers shall be black-on-white micarta tabs or other previously approved method. Circuit number tabs which can readily be changed from front of panel will not be accepted. Circuit number tabs shall not be attached to or be a part of the breaker.



- All branch circuit breakers shall be padlocked in the "off" position. Locking facilities shall be riveted or welded to the dead front plate.
- Where branch circuit breakers supply the power to motors and signal systems, the breakers shall be furnished with lockout clips, mounted in the "on" position in addition to the pad lockable facilities. The breakers shall be able to trip automatically with lockout clips in place.
- Each panel shall be equipped with a ground bus secured to the interior of the enclosure. The bus shall be equal to the panelboard neutral bus and shall have a separate lug for each ground conductor.
- No more than one conductor shall be installed per lug.
- Bussing shall be rectangular cross section copper.
- Neutral busses shall be at opposite end of panel from main.
- Where contactors, relays and/or time switches are installed in the panelboards, they shall be installed in separate barriered sections located at the top of the panelboards under a separate lockable door in front trim which shall be keyed the same as the circuit breaker section.
- Panelboards indicated shall be furnished with isolated ground bus, or equipment ground bus.
- In addition to the engraved bakelite nameplate hereinbefore specified, panelboard manufacturer shall stencil the panel number or letter on inside of panel door to correspond with panel designation on the drawings.
- Panelboards shall be as manufactured by Square "D" or General Electric.

**C. PANELBOARDS - DISTRIBUTION AND POWER:**

- General requirements for distribution and power panelboards shall be as specified above, "Panelboards - General".
- Engraved laminated bakelite plates shall be furnished identifying each circuit in the panelboard, the panelboard designation, the panelboard voltage, the source of power for the panelboard, including circuit designation. Provide nameplate schedule.
- Lock off devices shall be furnished for each circuit breaker.

**D. PANELBOARDS - LIGHTING AND RECEPTACLE:**

- General requirements for lighting and receptacle panelboards shall be as specified above, "Panelboards, - General"
- The panelboard door trim shall be furnished with semi-concealed hinges and lock. All panels shall be keyed alike.
- A 1/32" clear lucite covered directory shall be provided on the inside of each panelboard door. The directory shall be neatly typewritten designating each circuit used.
  - All circuit breakers serving discharge lighting shall be furnished with a lock off device.
- Permanent type numbers shall be furnished and installed adjacent to the circuit breakers. Numbers shall be either metal or plastic. Stick on types, or tape will not be permitted.
- Engraved laminated bakelite nameplates shall be furnished identifying the panelboard, panelboard voltage, source or panelboard power, with circuit designation. Provide nameplate schedule for approval.

**E. RECEPTACLES:**

- All receptacles except those equipped with a U.L. approved self-grounding device shall be installed with a bonding jumper for ground between the grounded outlet box and the receptacle ground terminal. Grounding

through the receptacle mounting straps is not acceptable unless receptacles are equipped with U.L. approved self-grounding straps.

- Duplex convenience receptacles shall be grounding type, 125 volt, 20 ampere and shall have two current carrying contacts and one grounding contact which is internally connected to the frame, with U.L. approved self-grounding straps. Outlet shall accommodate standard parallel blade cap, shall be side wired only, and shall be one of the following:

<u>Manufacturer</u>	<u>Cat# Series</u>
Arrow-Hart	5352
Bryant	BRY5362
Hubbell	HBL5362
Leviton	5362
P & S	5362

- Ground fault circuit interrupter (GFCI) receptacle shall be weather-resistant type, and shall be one of the following:

<u>Manufacturer</u>	<u>Cat# Series</u>
Arrow-Hart	WRVGF20
Bryant	GFTR20
Hubbell	GFR5362

- Weatherproof convenience outlet shall consist of a ground fault circuit interrupter (GFCI) duplex grounding type receptacle as specified hereinbefore mounted in a 4" box with single ring of type as required and lockable, weatherproof while-in-use type cover. Cover shall be one of the following:

<u>Manufacturer</u>	<u>Cat# Series</u>
Hubbell	#WP26M
Pass & Seymour	#WIUC10GL
Thomas & Betts	#CKMUV

#### F. CIRCUIT SWITCHES:

- Circuit switches shall be ivory, totally enclosed, bakelite, or composition base, toggle type rated 20 ampere, 277 volts, A.C. for full capacity of contactor for incandescent or fluorescent lamp loads. Provide single-pole, 2 pole, 3 way, 4 way, momentary contact, weatherproof, lock or other type switches as indicated. All lock switches shall be common-keyed.

<u>Toggle Type</u>	<u>Single Pole</u>	<u>Double Pole</u>	<u>Three Way</u>	<u>Four Way</u>
<u>Manufacturer</u>	<u>Cat# Series</u>	<u>Cat# Series</u>	<u>Cat# Series</u>	<u>Cat# Series</u>
Bryant	4901	4902	4903	4903
Hubbell	HBL1221	HBL1222	HBL1223	HBL1224
Leviton	1221	-	1223	1224

<u>Lock Type</u>	<u>Single Pole</u>	<u>Double Pole</u>	<u>Three Way</u>	<u>Four Way</u>
<u>Manufacturer</u>	<u>Cat# Series</u>	<u>Cat# Series</u>	<u>Regular</u>	<u>Lock Type</u>
Arrow Hart	-	-	-	-
Bryant	4901L	4902L	4903L	4904L
Hubbell	HBL1221L	HBL1222L	HBL1223L	HBL1224L
Leviton	1221L	-	1223L	1224L

Momentary Contact, Three Position, Two Circuit, Center Off.

<u>Manufacturer</u>	<u>Toggle Type</u>	<u>Lock Type</u>
<u>Manufacturer</u>	<u>Cat# Series</u>	<u>Cat# Series</u>
Arrow Hart	1995	1995L
Bryant	4921	4921L
Hubbell	HBL1557	HBL1557L
Leviton	1257	1257L

- Weatherproof switches shall be as specified above complete with weatherproof cover.

#### G. WALL PLATES:

- Plates shall be brushed stainless steel and supplied for every switch, receptacle, telephone and data outlet, speaker outlet, etc. Type shall be equal to Pass & Seymour Type 430 except where noted otherwise on drawings.
- Weatherproof cover plate shall be gasketed cast metal with hinged gasketed device cover.
- Plates shall be engraved and fitted, when specified for:
  1. More than two gangs.
  2. Equipment that cannot be seen from the location.
  3. All lock type switches.
  4. All receptacles other than 120 volts.
  5. All pilot switches.
  6. Switches in locations from which the equipment or circuits controlled cannot be readily seen
  7. Manual motor starting switches.
  8. Where so indicated on the drawings.
  9. As required on all control circuit switches, such as heater controls, etc.

#### H. OUTLET BOXES:

- Outlet boxes shall be hot dipped galvanized, one piece pressed steel knock-out type or cast iron with drilled, tapped and plugged holes. All boxes shall be of proper size for the number of wires or conduit passing through or terminated therein, but in no case shall any box be less than 4" square, unless specifically noted on the drawings. Cover shall be of the types most suitable for the outlets and shall finish flush with finished surface. Boxes in concrete shall be a type which will allow the placing of conduit without displacing the reinforce bars.
- Unless otherwise specified or noted on the drawings, boxes for the various outlets shall be as follows:
  1. For light outlet boxes use minimum of 4" square, 1 1/2" deep, equipped with plaster ring and fixture supporting device as required by the unit installed.

For wall switch outlet boxes use 4" square boxes with single or two gang plaster rings for one or two switches and solid gang boxes with gang plaster rings for more than two switches, unless noted otherwise on the drawings.

For convenience outlets, use 4" boxes with single gang plaster rings. For public telephone outlets, use single gang plaster rings.

For electric thermostats, use 4" square boxes with single plaster rings.

For outlets not specified, use boxes and mounting heights as directed. Cast iron floor boxes shall be watertight, adjustable flanged round units with combination 2" and 1/2" brass screw plugs. Boxes shall be one of the following:

Hubbell	#B-2503
Thomas & Betts	#1763
Steel City	#601
Lew Electric	#532-#535

Short elbows, T & B 4250, 51 or 52, for riser from side of box shall be provided where indicated on the drawings or where equipment is connected with floor boxes. Floor boxes for flush mounted duplex receptacles shall be adjustable watertight units, one of the following:

Hubbell	#B2503 with #S-3925 cover
Lew Electric	#632-DFB

Flush floor couplings shall be brass, complete with slotted brass plug, Russell and Stoll #1915 to #1920.

Where carpeting occurs all floor boxes shall be complete with carpet flanges.

**I. CONDUIT AND FITTINGS:**

- Conduit shall comply with the requirements of the Underwriters' Laboratories and shall be delivered to the site in standard lengths with each length bearing the manufacturer's trademark and the U.L. label of approval. Where conduit is mentioned in this specification, this shall be interpreted as rigid, standard weight steel conduit. Electrical metallic tubing, polyvinyl-chloride, or flexible metallic conduit shall be used only where specified or noted on the drawings. Rigid steel conduit fittings and accessories shall be hot-dipped galvanized or sherardized, with threaded connections.
- Rigid steel conduit may be used in all locations both above and below grade, in concrete floors, walls and ceilings, concealed and exposed work, indoor and outdoor exposed to the weather. Rigid steel conduit shall not be installed below grade unless it is encased in a concrete envelope with minimum thickness on all sides of three inches (3") or double wrapped with Scotch #50 tape. Bushings shall be non-metallic for conduits 1" or smaller and insulated metallic bushings shall be used for conduits 1 1/4" and larger. Bushings shall be O.Z. Electrical Mfg. Co., Type "B" or Type "BLG" grounding type.
- Electric metallic tubing (EMT), couplings, and connectors shall be hot-dip galvanized or sherardized. Couplings and connectors shall be of the compression or drive on type. Electrical metallic tubing shall be thin wall galvanized with compression type galvanized couplings and connectors equal to Appleton 95T and 86T series. Electrical metallic tubing may be installed in indoor dry locations only, both concealed and exposed work. When exposed, it shall not be installed lower than seven (7) feet above the finished floor. Electrical metallic tubing may be installed inside masonry walls which are filled with grout or concrete. No electrical metallic tubing shall be installed below grade.
- Flexible conduit shall be galvanized steel, and shall be installed with compression type connectors. Flexible metallic conduit shall be hot-dipped galvanized with hot-dipped galvanized squeeze type couplings and fittings. Flexible metallic conduit shall be used only for final connections to motors, lighting fixtures, transformers and other sound and vibration type of equipment. When used in wet or damp location, it shall be the sealite type with liquid tight connectors and couplings.
- Liquid tight flexible conduit shall be galvanized steel with molded UL approved covering, and shall be installed with liquid tight fittings.
- Plastic conduit shall be polyvinyl chloride (PVC) schedule 40. Fittings shall be solvent welded type.
- Plastic (PVC) coated conduit shall be hot dipped galvanized or sherardized with polyvinyl coating bonded to the outside surface.
- The thickness of the vinyl jacket shall be a minimum of 20 mils. All couplings shall have a plastic sleeve extending beyond both ends approximately one pipe diameter.
- Aluminum conduit shall not be permitted.

**J. TERMINAL CABINETS:**

- Terminal cabinets shall be fabricated of sheet metal for flush or surface mounting of size indicated on the drawings and shall be complete with hinged lockable doors (except public telephone terminal cabinets - these shall be with non-lockable latches), index card holders, and the number of terminals as indicated on the drawings or as specified hereinafter.
- Terminals shall be Square D Class 9080, Type KBA-1 with one terminal for each incoming and outgoing conductor. Cabinets shall be constructed and finished identical to panelboards. A 1/2" plywood backing shall be furnished in all terminal cabinets. Terminal cabinets shall be manufactured by the same manufacturer as the panelboards.
- Boxes and cabinets shall be independently and securely fastened to the structure, and in concealed work shall be set flush with the finished surfaces of the walls or ceilings.
- Where boxes and cabinets are identified on the drawings, they shall be furnished with engraved laminated nameplates identifying the enclosure. Submit schedule for approval.
- Telephone and relay control cabinets shall be furnished with mounting backboards, 3/4" plywood.

**K. PULL BOXES:**

- Pull boxes shall be code gauge, galvanized sheet steel, and shall be installed wherever indicated, as required by Code, and as directed in order to facilitate the pulling in of wires or cables in the conduit. All boxes shall be provided with removable covers secured with machine screws.
- All boxes exposed to the weather, moisture, or special environments, shall be suitable for the installation.
- Pull boxes shall meet all code requirements as to size for conduits terminating therein and to thickness of metal used in fabrication or casting.
- Fabricated sheet steel pull boxes shall be installed only in dry protected locations and shall be furnished with required knockouts and removable screw cover. Box shall be finished with one coat of zinc chromate and a coat of primer sealer and where exposed to public view shall be painted to match the surroundings.
- Weatherproof sheet steel pull boxes shall be fabricated of code gauge galvanized sheet steel with two coats of rust resistant finish and shall be furnished with gasket and made completely weathertight.
- Cast iron pull boxes shall be furnished with gasketed screw cover, drilled and tapped holes as required. Boxes shall be as manufactured by T & B, Alhambra Foundry Co., or Russell and Stoll. Where cast iron pull boxes are called for as being flush with finished grade, boxes shall have integral flange or trim.

**L. CONCRETE PULL BOXES:**

- Concrete pull boxes shall be of the size as shown on the plans with parkway or traffic type cover. Concrete pull boxes shall be Brooks or Christy.
- Pull box covers shall be of the parkway or heavy duty traffic type as called for on the plans. Parkway type covers shall be checkered plate tread with tapered brass screws holding the cover closed on all four sides. Cover shall be of sufficient strength to span the opening with minimum deflection, shall have red lead base paint on both sides, and a finish color coat as selected by the City/Owner. Heavy duty traffic type covers shall have square block tread, drop lift handles, sets and covers ground to fit, and finished as described for parkway covers.

**M. 600 VOLT WIRE AND CABLE:**

- All conductors shall comply with the specifications of Underwriters' Laboratories, Inc., for 600 volt insulated copper conductors. No wires shall be smaller than 12 gauge unless noted otherwise on drawings. Wire and cable shall be delivered to the site in original and unbroken packages marked and tagged with UL labels; size, kind and insulation of wire; month and year of manufacture, not to exceed eight months prior to date of delivery. Conductors shall be copper, 600 volt insulated, or the following types:
  - Conductors for lighting and power shall be XHHW-2. Conductors for control wiring shall be XHHW-2.
  - Conductors for use in fixture raceways shall be type RHH or RHW-2 if the fixture temperature does not exceed 90 degrees C, AVA shall be used if the fixture exceeds 90 degrees C.
- Color code for power and lighting systems shall be as follows:
  - 120/240 volt, 1-phase, 3-wire systems, phase A, black; phase B, red; neutral, white; ground, green.
  - 208Y/120 volt, 3-phase, 4-wire systems, phase A, black; phase B, red; phase C, blue; neutral, white; ground, green.
  - 480Y/277 volt, 3-phase, 4-wire systems, phase A, brown; phase B, orange; phase C, yellow; neutral, white; ground, green.

**N. DRY TYPE TRANSFORMERS:**

- Dry type transformers shall be two winding type, air cooled, copper windings, of the voltage rating and capacity indicated on the drawings. Transformers shall be ventilated steel enclosed with conduit knockouts to the wiring compartment. Oxygen free copper shall have Class H insulation.
- Transformer primaries shall have two 2 1/2 percent FCAN, and two 2 1/2 percent FCBN taps.

- Transformer noise level shall be NEMA standard for general purpose transformers. Rubber vibration dampers shall be installed between core and coil assembly and mounting bracket.
- Transformers shall have load lugs for full capacity parallel wiring in a compartment suitable for termination with specified conductors.
- Transformer nameplates shall carry all electrical data, including taps, voltage combination wiring diagram, tap terminal arrangement, KVA, impedance and reactance. Transformer submittal shall include nameplate information, db level, no load 25% - 50% - 75% and full load losses, height, width, length, and weight.
- Identified transformers shall be furnished with engraved laminated nameplates identifying the transformer, feeder source, and panel or load fed. Submit nameplate schedule for approval.
- Manufacturer shall be Square D or General Electric.

**O. DISCONNECT SWITCHES:**

- All safety switches, unless otherwise specified or shown on the drawings, shall be 480 volt or 250 volt class, of the visible blade type, heavy duty, horsepower rated and shall have quick- break, quick make type with three poles in NEMA Type 1 enclosure with number of poles and amperage as indicated on the drawings. Where enclosure is indicated W.P. (weatherproof) switches shall be in raintight NEMA Type 3R enclosure. Switch handles shall be capable of being locked in the open or closed position.
- Safety switches for disconnecting use only shall be of the non-fusible type.
- Switch size shall be as required by Code, unless shown on the drawings to be of a larger size. Fuses shall be dual element, and current limiting, of the sizes shown on the drawings, as manufactured by "Bussman". Provide 10 percent but not less than three spare fuses for each size and type fuse specified.
  - o Identified switches, and switches for mechanical equipment, shall be furnished with engraved laminated nameplates indicating their use, equipment designation, and feeder source. Submit nameplate schedule for approval.
- Manufacturer shall be Square D or General Electric.

**P. MANUAL MOTOR STARTERS:**

- Manual motor starters shall be flush or surface mounting with number of poles and sizes of thermal overload heaters as required for the motor being controlled. All flush mounted units shall have proper back boxes. Where pilot light is shown, the pilot light shall be installed in a separate outlet box adjacent to the starter outlet.
- The starters shall be as follows:

<u>Manufacturer:</u>	<u>10, 1ph &amp; Below:</u>	<u>Others:</u>
Arrow-Hart	Type RL	Type LL
Allen-Bradley	Bul. 600	Bul. 609
Cutler-Hammer	Bul. 9101	Bul. 9115
General Electric	CR101	CR1062
ITE	Class C10-C12	Class C20
Square D	Class 2510, Type A	Class 2510, Type B

**Q. MAGNETIC MOTOR STARTERS:**

- Magnetic motor starters shall be A.C. line voltage, across- the-line units in NEMA 1 enclosure. All starters located outside of a building or indicated to be weatherproof (W.P.) shall be furnished in NEMA Type 3R enclosure. Starters shall be horsepower rated for the motor controlled and shall be equipped with properly sized overload elements. Every pole shall be with overload element.
- Each starter shall be equipped with integral control transformer, pilot light, "HAND-OFF- AUTO" or Start-Stop switch, minimum one auxiliary contact. Additional auxiliary contacts shall be provided as required by the control wiring diagrams.
- Each starter shall have an engraved nameplate.

- Magnetic motor starters shall be as follows:

<u>Manufacturer:</u>	<u>Type:</u>
Arrow-Hart	RA
Allen-Bradley	Bul.709
Cutler-Hammer	Bul.9586
General Electric	Class CR106
Square D	Class 8536

**R. COMBINATION MAGNETIC STARTERS:**

- Combination magnetic starters shall be non-fusible safety switch and an across the line magnetic motor starter, both as specified in preceding paragraphs, installed in NEMA Type 1 enclosure or NEMA Type 3R enclosure for outdoor installation.

- Combination magnetic starters shall be as follows:

<u>Manufacturer:</u>	<u>Type:</u>
Arrow-Hart	RAC
Allen-Bradley	Bul. 712
Cutler-Hammer	Bul. 9589 or 9591
General Electric	Class CR107 or CR108
Square D	Class 8538 or 8539

**S. INDIVIDUAL CONTROL RELAY:**

- Individual control relays shall have convertible contacts rated a minimum of 10 amperes, 600 volts. Coil voltage, number and type of contacts shall be verified. Furnish in NEMA Type 1 enclosure.

- Relays shall be as follows:

<u>Manufacturer:</u>	<u>Type:</u>
Allen-Bradley	Bul. 700, Type BX
Arrow-Hart	IMP
Cutler-Hammer	Bul. 9575
General Electric	Class CR2811
Square D	Class 8501, Type A

**T. TIME SWITCHES:**

- Time switches shall be as shown on the drawings.

**U. CONTROL TRANSFORMERS:**

- Provide transformers for use on 60 hertz systems with the following characteristics:
  - o Type: Dry, self-cooled, 2-winding type.
  - o Ratings: Phase, voltage and connection arrangements, as indicated.
  - o Capacities: Volt-ampere capacities as indicated or as required.
  - o Sound Ratings: In the installed condition, the sound level shall not be audible to the occupants of the building during normal building use.
  - o Fusing: Provide secondary fusing on transformer housing.
  - o Disconnect: Provide disconnect switches for primaries of transformer if required by jurisdictional authorities.
  - o Manufacturer: Minneapolis Honeywell, or Sola.

**V. LIGHTING CONTACTORS:**

- Contactors for control of lighting shall be 600 volt, A.C. electrically held units, open type for panel mounting with number of poles and of size and with coil voltage as indicated on the drawings and shall be manually operable from the face of the unit.
- Contactors shall be mounted in panelboards in barriered section under hinged lockable doors or in contactor cabinets as called for on the drawings. Contactors shall be installed on sound absorbing rubber mounts.

- Contactors shall be Automatic Switch Co., Bulletin #920 for 2 and 3 pole and ASCO Bulletin #915 for more than three-pole, General Electric Class CR 160MB for 2 and 3 pole or Square D Class 8903 with switch for 2, 3, and 4 pole.

**W. AUXILIARY GUTTER:**

- Auxiliary gutter shall be furnished and installed complete by this Contractor in locations as shown on the drawings.
  - Gutter shall be screw cover type unless noted as hinged cover type on the drawings.
- Wall mounted gutter shall be securely anchored with pre-set inserts or special backing.
- Gutter which is suspended from ceiling shall be supported at intervals not exceeding 5'-0" on centers with 3/8" rods and shall be braced to prevent swaying.
- Gutter shall be of size as shown on the drawings, complete with end caps, couplings, hangers, elbows and offsets as required for the proper installations.
- Gutter shall be equal to Square D D.C. Lay-in duct.
- Conduit seal shall be provided where indicated on the drawings to seal the ends of a conduit run against water, gas or other undesirable objects from entering the conduit. Conduit seal shall be O.Z. Electric Mfg. Co. Type "CSBG".

**X. LIGHTING FIXTURES AND LAMPS:**

- The Contractor shall furnish and install lighting fixtures indicated in the FIXTURE SCHEDULE on the drawings or approved substitution, complete with all necessary mounting hardware, and lamps indicated.
- All exterior lighting fixtures shall have wet location label.

**Y. LIGHT EMITTING DIODES (LED) AND DRIVERS:**

- LED sources must meet the correlated color temperature (CCT) indicated on drawings. The color rendering index (CRI) shall be greater than 65%. The minimum useful life shall be 50,000 operating hours before reaching the lumen output degradation point, accounting for individual LED lumen depreciation and catastrophic failures.
- LED drivers must have a minimum efficiency of 85%. Rated case temperatures shall be suitable for operation in the luminaire operating in the ambient temperatures. Input voltage shall be capable of 120 to 277 ( $\pm 10\%$ ) volt, single phase as required by the site. Power supplies shall be UL Class I or II output. The operating frequency must be 50/60 Hz. Drivers must have a minimum power factor of 0.90. The minimum time between failures (MTBF = total hours of testing / number of failures) shall be greater than 300,000 hours at full load and 25 degrees C ambient. Lifetime = 100,000 hours at full load and 25 degrees C ambient.

**Z. TELEPHONE SYSTEM:**

- The Contractor shall furnish and install an empty conduit system for telephones as indicated on the drawings.
- Telephone backboards shall be 3/4" plywood.
- Provide telephone system ground at the main entrance backboard.

**AA. LOW VOLTAGE SYSTEM:**

- The Contractor shall furnish and install an empty conduit system for low voltage system such fire as alarm system, public address system, security system etc., as indicated on the drawings.

**BB. GROUNDING SYSTEM:**

- The grounding system shall consist of connection to underground metallic cold water pipe not less than 10' long effectively grounded, ground rods and UFER ground. Ground clamps shall be approved type. The maximum resistance to ground shall not exceed 5 ohms. The interior metallic cold water piping system shall always be bonded to the service-equipment ground.



- Ground conductors for branch circuit wiring shall be attached at each outlet to the back of the box using drilled and tapped holes and washer head screw, 6-32 or larger.

**CC. TEST MANDREL:**

- A segmented steel test mandrel of proper size shall be pulled through each non-metallic conduit 2" and larger. This test shall be made within 2 hours after concrete envelope has been poured. A steel cable shall be fastened to both ends of the mandrel and mandrel shall be repulled through the conduit in the opposite direction.

**DD. ROOF JACKS:**

- Galvanized iron roof jacks of the proper size shall be furnished and installed by this Contractor for each conduit that stubs up through roof.

**EE. CONCRETE WORK:**

- The concrete work for conduit envelopes shall be non-structural slab type with a mix of 1:2 1/2:3 1/2 by volume with 7 1/2 gal. of water per sack of cement.

**FF. MISCELLANEOUS IRON WORK:**

- All miscellaneous iron work required to complete and properly install the electrical work shall be furnished and installed. This shall include all supports, pull-in irons, etc.

**GG. STAINLESS STEEL:**

- In all cases where stainless steel is specified, called for or used under this Division of the specifications for plates, cabinet or panel covers, lighting fixtures, etc., it shall be a non-magnetic, non-corrosive, chrome-nickel alloy. The finished material shall be free of any burrs. All exposed screws shall be of the same alloy. The steel shall be composed of 18% chromium and 8% nickel and shall be A.I.S.I. Type 302 finished satin.

**HH. NAMEPLATES:**

- Provide white-on-black nameplates for each switchboard, panel, terminal cabinet, control center, pull box, disconnect switch and magnetic motor starter to correspond with designations on the drawings.
- Nameplates shall be secured with screws, bolts, or rivets. Other means of attachment shall not be accepted. "DYMO" type labels will not be accepted.

**III. INSTALLATION**

**A. CONDUIT:**

- Conduits run exposed and subject to mechanical injury shall be rigid heavy wall galvanized steel conduit.
- Conduits run exposed outside, or in floor slabs, shall be rigid heavy wall galvanized or sherardized steel.
- Conduits run below floor slabs, and underground exterior to the building shall be schedule 40 heavy wall high impact, PVC electrical conduit. All conduit joints shall be made with factory approved welding solvent. A ground wire shall be installed in all PVC conduits along with circuitry wiring, or with the duct bank in accordance with the requirements of the drawings.
- All underground conduit containing cable shall be sealed with duct seal at each end.
- Underground conduits shall be installed 30" minimum depth where subjected to vehicular traffic and no less than 24" under any circumstances. A 6" wide red detectable warning tape "CAUTION-BURIED ELECTRICAL LINE BELOW" shall be installed 6" below finished grade in all trenches.
- All risers shall be rigid steel and shall be encased in concrete completely.
- Conduit for lighting and outlet circuits shall be EMT in areas above suspended ceilings, in walls, and other areas where not subject to mechanical injury.

- All panelboard and transformer feeders shall be rigid heavy wall steel conduit where installed above grade.
- Flexible conduit shall be installed to all rotating or vibrating equipment. Sealtite conduit shall be used for all exterior equipment. Flexible conduit for motor connections shall have a maximum length of 36 inches. A ground wire shall be installed in all flexible conduit.
- Exposed conduits one inch and smaller shall be secured to the building construction with one hole straps, spaced as required by Code.
- All concealed or exposed conduit larger than one inch shall be secured in place with T & B, or equal, pipe straps, suspended pipe hangers, or grouped on racks.
  - Rods or pipe supports shall be screwed to wood construction with wood or lag screws, and to concrete with concrete inserts.
- Exposed conduit shall be uniform and symmetrical, rigidly and securely fastened to the structure. Perforated pipe strap may not be used.
- Conduits shall not be supported from ducts, pipes of other trades, or from suspended ceiling members, unless specifically approved by the Architect.
- Conduit shall not be run closer than 6 inches to any hot water pipe, steam pipe, heater flue, or vent.
- Factory ells shall be of the same make, quality, and finish as the conduit used, or ells may be formed from conduit using approved factory benders. All conduit ells used on the underground distribution shall have a minimum radius of ten times the conduit size where rising into equipment, or vertical runs, and shall be rigid heavy wall steel, or plastic coated or wrapped rigid heavy wall steel.
- Changes of direction in underground or underfloor conduit runs shall be made with long radius sweeps.
- Connectors and couplings for EMT shall be of the compression or drive on type. Set screw or indenter type will not be allowed.
- No running threads or split couplings will be permitted.
- Conduit terminations at outlets, boxes and cabinets shall be provided with locknuts and bushings. Ends of conduit 1 1/4" trade size and larger, and conduits containing #4 AWG size cables, and larger, shall be equipped with insulated bushings. Feeder conduit bushings shall be grounding type.
- All conduit bodies installed in any location where moisture is apparent, shall be equipped with rubber gaskets.
  - The Contractor shall furnish and install fittings, special devices and material, which may be required for the proper installation of the conduit system.
- Conduits shall be thoroughly swabbed out. The Contractor shall leave all conduits dry and clean of obstructions. Conduits stubbed up during the course of construction shall be capped with a fitting approved for the purpose.
- Conduit and metallic raceway systems shall be mechanically and electrically continuous from sources of current to all outlets in a manner to provide a continuous grounding path.
- Conduits stubbed through concrete floors shall be rigid steel, and shall have a conduit coupling finished to the floor line. Empty conduits shall be plugged with a conduit plug at the floor line.
- Install a 2500 pounds tensile strength polyester measuring/pulling tape, end to end in each spare or empty conduit, with a tag at each end, designating opposite terminus of the conduit, and planned use or designation of conduit.
- Conduit shall be supported at intervals not exceeding 10 feet and in all cases where a support not more than 3 feet from the outlet and at any point where it changes direction.
- Minimum clearances of 6" shall be maintained between conduits and hot water, steam pipes, heaters, etc., and 18" from the covering on flues and breeches.

- Each bend of conduit shall be reamed and conduit thoroughly cleaned of burrs, scale, dirt, etc., both inside and outside.
- Ends of all conduits shall be kept closed with approved conduit seals during construction of building.
- All underground stub outs or group of stub outs in one location shall be furnished with concrete monument 6" x 6" x 15" deep buried flush with 3" square brass plate securely mounted and engraved with the number and size and depth of conduits.
- Joints in all conduit installed in concrete, or exposed to weather, shall be liquid and gas tight.
- Conduit stubs installed for future extensions shall be rigid steel for at least 5 feet of the conduit run. The conduit runs shall be double terminated with couplings and pipe plugs. The closed end shall be double wrapped with Scotchrap #50 for the last 12 inches. The concrete envelope shall leave 3" of the wrapped conduit exposed for future connection.
- Conduit shall be concealed, unless otherwise noted. All conduit runs exposed to view, except those in attic spaces, shall be installed parallel, or at right angles to structural members, walls, or lines of the building. Where conduit passes from one type of construction to another, or where there is a possibility of dissimilar movements, a suitable flexible or expansion device shall be installed.
- Expansion fitting shall be equal to 0.7 type DX. Where storm drains, sewer lines and other gravity lines are to be crossed by conduits, grade stakes shall be set for the gravity lines, elevations of conduits shall be put at proper depth so that there will be no conflict with storm drains, sewer lines and other gravity lines.
- All public telephone conduit runs shall be installed with long radius sweeps, and no factory "ells" shall be permitted. Conduit shall be installed in a manner satisfactory to the Telephone Company Engineers.
- Use approved conduit unions where union joints are necessary.
  - Running threads will not be permitted. Unless noted otherwise, and all screws, bolts, etc., shall be in place upon final inspection.

**B. OUTLET BOX:**

- Outlet boxes shall be accurately placed, independently and securely fastened to the structure, and set so that plaster rings will finish flush with the finished surface of wall and ceiling. Secure conduit to outlet boxes with double lock nuts and insulated bushings.

**C. CONCRETE PULL BOXES:**

- Concrete pull boxes shall be installed on a bed of twelve inches compacted pea gravel or clean river sand, level, and the pea gravel or sand shall be spread to an area six inches greater than the exterior size of the pull box.

**D. WIRE AND CABLE:**

- Unless otherwise noted on the drawings, all wire and cable shall be installed in conduits.
- All lighting, power and control circuits shall be identified at each terminus, and in each junction or pull box. Lighting and power circuits shall be identified as to panel and circuit. Wire markers shall be Brady, or equal.
- Splices in conductors #8 and smaller shall be made with "Scotchlok" insulated connectors of proper size.
- Splices in conductors #6 and larger shall be made with pressure type solderless connectors taped with 3-M "Scotch" #33 electrical tape.
- Connectors and terminal lugs shall be used for terminating stranded conductors #6 and larger and shall be T & B, ILSCO, or equal, solderless connectors.
- Wire in panel, cabinets, pull boxes and wiring gutters shall be neatly grouped, taped together with 3-M "Scotch" #33 plastic electrical tape, T & B Model Tyrap cable strap or laced with #12 stranded lacing twine and fanned out to the terminals.
- Neutral conductor shall be continuous in outlet boxes and shall not be broken by addition or removal of devices.

**E. MOUNTING HEIGHTS:**

- Unless specified elsewhere, or shown, the following mounting heights shall apply:
  - o Panelboards over 29" high: 6'-0" to handle of highest circuit breaker
  - o Disconnect switches: 4'-0" to center line
  - o Receptacles: 15" finished floor to bottom of box
  - o Wall switches: 4'-0" to top of box

**F. GROUNDING:**

- Grounding shall be executed in accordance with all applicable codes and regulations both of the State of California and local authorities having jurisdiction.
- The service ground shall be a footing steel "UFER" ground, or as shown on the drawings. Braze, or thermoweld, a copperclad steel rod to the reinforcing steel. Extend the rod to the service switchgear so as to make it permanently available for connecting to the ground conductor. Resistance of the "UFER" ground shall not exceed 5 ohms. Where the measured resistance to ground is more than 5 ohms, additional ground rods or longer ground rods driven to a greater depth, shall be used.
- Ground conductor shall be XHHW-2 insulated stranded copper conductor installed in conduit. Connect to the ground rod, and extend to the ground bus in each service. A ground conductor shall be used for transformer grounding.
- The interior cold water piping system shall be bonded to the "UFER" ground rod, with XHHW- 2 copper conductor installed in conduit.
- All equipment, including switchboard, service entrance equipment, conduit system, motors, and other applicable apparatus, shall be grounded, or bonded.
- If non-metallic or flexible conduit is used, a green insulated, copper ground wire sized in accordance with code shall be installed. Conduit size shall be increased to conform to code.
- The ground bus shall be equal to the neutral bus and shall have a separate lug for each ground conductor.
- Continuity of equipment ground shall be maintained throughout the system. This Contractor shall exercise every precaution to obtain good contact at all conduit connections, panel boxes, pull boxes, etc. Where it is not possible to obtain contact, bonding shall be provided.
- Do not use water pipe as ground. Water pipe system is non-metallic. All be connected to system ground. Neutral to ground shall not exceed five ohms. Connect fixture to ground with #10TW wire. All rigid galvanized steel conduit shall be properly grounded. Use proper ground rod clamps and conduit fittings to ground cable and conduit to driven ground rods. Size as required by code. Bond to building cold water piping.
- Equipment grounding conductors installed in conduit shall be in accordance with the following schedule as a minimum:

Circuit Breaker/Fuse Size	Ground Conductor
0A to 20A	#12 Copper
21A to 60A	#10 Copper
61A to 100A	#8 Copper
101A to 200A	#6 Copper
201A to 400A	#3 Copper
401A to 600A	#1 Copper
601A to 800A	#1/0 Copper

**G. LUGS:**

- Furnish and install proper lugs in all panelboards, switchboards, gutters, etc., required to properly terminate every cable. Where paralleled conductors or conductors of size larger than the capacity of breaker are to terminate on a breaker a short length of copper cable (of capacity of the breaker) shall be connected to the breaker, and the proper bolt or compression type lug installed to connect this cable to the feeder cable. The cutting of cable strands to fit the breaker will not be permitted.

#### **H. PAINTING:**

- All electrical work exposed to view which is not pre-finished or for which other finishing instructions are not given, shall be painted to match surroundings. Work to be painted shall include conduit, hangers, outlet boxes, pull boxes, surface metal raceways and similar items
- Factory finish paint: junction and pull boxes, panelboards, switchgear, cabinets, equipment enclosures, lighting fixtures.
- Field paint: All ferrous material, not having a factory finish, shall be given a prime coat of zinc chromate. Finish coat shall be field painted in accordance with Division 9, as required. All electrical work shall be left in proper, clean dry, smooth condition to receive the painting work.

#### **I. LIGHTING FIXTURES:**

- Install in accordance with manufacturer's instructions.
- Install surface mounted luminaires plumb and adjust to align with building lines and with each other. Secure to prohibit movement.

#### **J. CONNECTIONS TO EQUIPMENT OR SYSTEMS:**

- The Electrical Contractor shall connect to equipment furnished by other contractors where noted on drawings, including booster pumps and irrigation controllers.

#### **K. PARKING AND WALKWAY LIGHTING SYSTEM:**

- Anchor base templates shall be provided. The poles shall be delivered to the site and assembled for light fixture mounting. Proper precaution shall be taken when erecting poles to prevent any damage to poles and equipment mounted on them. Poles shall be set vertical with a transit and not be off place more than +2" at the top. Scuff marks shall be repaired to match pole or entire pole painted. Pole galvanized areas shall be repaired with hot stick galvanize. Provide written evidence that the installed poles will meet State Division of Industrial Safety requirements.
- Light Fixtures: All wiring of the luminaire assembly shall meet California Electrical Code and shall pass from each luminaire on the assembly through protective enclosures to join in a common enclosure. Each luminaire shall have individual fuses or circuit breakers for over-current protection which protection devices shall be located in ballast boxes or in adjacent metal enclosures.
- Control Equipment: Provide and install in control panel in space provided, time clocks, contactors, relays, and control equipment as noted on drawings. Contactors shall be behind locked door. Meters, clocks, and HOA override switches shall be flushed in control panel inner door with nameplates. Equipment shall be mounted on mounting panel. Set time clock trip elements as directed by the City. All contactors operating any type of exterior lighting, including building mounted security lights, shall have a labeled manual override (HOA) switch at the control panel. Sports lighting time clocks shall be installed, with relays as necessary, to operate the contactor coils such that the "on" button will not activate the lights prior to a given start time and the light system will shut off at a given curfew time whether the "off" button is activated or Field
- Technician On-site Visit: Manufacturer shall provide an on-site visit by a factory technician after completion of the installation. The factory technician shall make any necessary adjustments to the aiming in order to ensure that specified maximum footcandle levels are not exceeded. This service shall be included at no additional cost to the owner or installing contractor.

#### **L. FOUNDATIONS:**

- Contractor shall excavate and install, for each pole, foundations as noted on the drawings. All concrete shall be poured against undisturbed soil. Backfilling and compacting will not be approved. Form the top 8" of each foundation and finish top of slab with an outward taper approximately one (1) foot. A slip form may be used when pouring the foundation. Hole may be drilled as slip form is placed. Foundation shall be equipped with reinforcing steel as noted on drawings. Foundation dimensions are based on poles and fixtures specified. Grout under poles with structural grout. Steel reinforcing bars shall conform to ASTM A615, Grade 40 Reinforcing Steel Test is required. Call for steel placement inspection when ready as noted.

- Foundation holes shall be inspected by the Soils Engineer prior to pouring concrete.
  - Inspector shall notify the Soils Engineer. Owner shall pay for all soil inspection.
- Concrete Pole Foundation.
- Concrete: Concrete backfill shall have a minimum ultimate compressive strength at 28 days of 3,000 psi. Concrete backfill shall attain a minimum strength of 2,000 psi prior to steel pole erection.
  - Pacing: Cement shall be packed in strong paper or jute sacks with the brand and name of the manufacturer plainly marked thereon.
  - Aggregates per ASTM C-33.
  - Storage: Aggregate shall be stored on the site separately and measured in a manner to avoid the inclusion of foreign materials as approved by the Inspector.
  - Water: Water required for all purposes shall be clean, free from strong acids, alkalis, oil, or organic materials. Concrete shall be a mixture in the unit proportions of Portland Cement. Use type II Portland cement or as recommended by the Geotechnical Engineer.
  - Mixing: All concrete shall be mixed in conformance with ASTM C-94 (1" maximum aggregate size). Materials for each batch of concrete shall be accurately and separately measured and placed in the mixer.
  - Consistency: The quantity of water used shall not exceed the maximum quantity specified and shall be the minimum necessary to produce concrete of the workability required by the Inspector. Supplementing the predetermined amount of water by additional water because of the slowness of discharge or for any other reasons will not be permitted.
  - Transit-Mixed Concrete: The Contractor may use transit-mixed concrete in lieu of concrete manufactured on the site, provided the materials used in its manufacture comply with the requirements of these specifications.
  - Place concrete immediately after completion of excavation and inspection by the geotechnical engineer. No excavations shall be left unprotected or open.
  - Concrete shall be placed in one continuous operation (no construction joint) with special equipment with a maximum free fall of 5 feet and to prevent concrete from striking the sides of the excavation. Vibrate top 5 ft.
  - The manufacturer of the transit-mixed concrete shall deliver to the Inspector on the work, a certificate with each mixer truck, stating the quantity of cement, water, fine aggregate and coarse aggregate. Certificate shall be certified at batch plant that it meets these requirements and delivered to the Inspector.
  - Transit-mixed concrete shall not be delivered to the work with the total as specified amount of water incorporated therein. Two and one-half gallons of water per cubic yard shall be withheld and may be incorporated in the mix before the concrete is discharged from the mixer truck, under the supervision of the Inspector.
  - Use: The Contractor shall not re-temper any concrete or use any concrete that has stood more than 15 minutes after leaving the mixer.

#### IV. QUALITY ASSURANCE

##### A. RECORD DRAWINGS:

- Maintain in good order in the field office a complete set of electrical drawings. All changes to the contract shall be clearly recorded on this set of drawings.
- Maintain a completely dimensioned record of all buried conduits exterior to the building. Dimensions shall include depth from finished grade or datum, and dimensions to two fixed points above grade, for all changes in direction, to define the routing of all buried conduits.
- Maintain a record of the routing of all major feeder conduits inside of the building.
- At the end of the project, the Contractor shall turn the drawings over to the City/Owner. Each drawing shall be initialed by the Contractor, certifying the correctness of the "As-Built" drawing.

##### B. TESTS:

- Upon completion of the work, and adjustment of all equipment, all systems shall be functionally demonstrated to the City/Owner's representative. All systems shall function electrically in the manner required.
- The Contractor shall furnish all necessary instruments and equipment required for making tests, and shall test all wiring for shorts, open circuits, grounds, etc.
  - The switchboards, and distribution panels (branch panels and EXO switches excluded) shall be tested and inspected as follows:

- All circuit breakers shall be tested and inspected for proper trip operations on long delay, short delay, and instantaneous trip. Test current for long delay tripping shall be 300 percent of rated trip.
- All relays, and ground fault relays, shall be tested for operation, and coordinated.
- All fused, non-fused, and transfer switches shall be checked for proper operation.
- All motor starters shall be checked for proper operation and condition.
  - All bolted connections shall be checked and tightened for proper torque, as recommended by the manufacturer.

**END OF SECTION**

## SECTION 16500 – EXTERIOR ATHLETIC

### I. GENERAL

#### A. Related Documents

Drawings and general provisions of the bid documents, including general and supplementary conditions apply to this section.

#### B. Description of Work

- The Sports Lighting section includes:
  - Galvanized steel pole and luminaire mounting crossarms
  - LED Luminaires, with appropriate glare/spill light control
  - Remote driver enclosure
  - Pole Foundations
  - Control System
  
- The purpose of this specification is to define the performance standards, product values and features, required manufacturer's service responsibilities, and design standards for Olive Bowl/Kaku Park Expansion, Lindsay, CA.

#### C. Submittals

- It has been predetermined that these project specifications are the minimum acceptable criteria for this project. Musco Sports Lighting LLC, Total Light Control – TLC for LED™ technology is the only pre-approved equipment supplier.
  
- Manufacturers requesting approval shall provide submittal information as per Section 1.03 D. Submittal information must be received 10 days prior to bid opening, approved manufacturers will be notified by addendum.
  
- Submit each item in this article according to the conditions of the contract and specification section. Any deviations to the specification require the manufacturer to list and describe in detail such deviations. Failure to provide this information shall be grounds for immediate rejection.
  
- Submittal information required:
  - Light scans as per Section 1.04 of the specification.
  - Spill scans as per Section 1.05 of the specification.
  - Detailed warranty information as per Section 3.01 of the specification.
  - Detail foundation design as described in Section 2.01
  - Provide written information for the automated control system to include monitoring. Also provide examples of system reporting and access for numbers for personal contact to operate the system.
  - The manufacturer must submit evidence in the form of a letter from a California Licensed structural engineer that the manufacturer has the ability to conform to the California Title 24 structural design requirements. The manufacturer must provide five (5) similar pole submittal project reviews approved by the California Division of State Architecture's office in the past two (2) years. The examples are to include the D.S.A. file numbers.
  - Lighting Manufacturer will supply certified photometric reports from Independent Testing Lab (ITL) or a Certified Lab along with an aiming angle summary for verification.

#### D. Sports Lighting Performance

- Illumination Levels and Design Factors: The illumination levels specified shall be based on light levels for 25 years. Light levels shall not drop below specified targeted lighting levels during the specified warranty period. Appropriate light loss factors shall be applied and submitted for the basis of design.



Area of Lighting	Light Levels	Uniformity	# of Points	Size of Area	Grid Spacing
Baseball Field	Infield – 50fc	2:1	25	288’/	30’ x 30’
	Outfield – 30fc	2.5:1	71	301’/300’	
Softball Field 1	Infield – 50fc Outfield – 30fc	2:1 2.5:1	25 71	200’/ 200’/ 200’	20’ x 20’
Softball Field 2	Infield – 50fc Outfield – 30fc	2:1 2.5:1	25 71	200’/ 200’/ 200’	20’ x 20’
Skatepark	30fc	2.5:1	88	104’ x 110’	10’ x 10’

### E. Spill And Glare Analysis

- Submitted spill/glare computer models shall depict the field test stations at **the roads bordering the property**. The test stations shall be shown every 30’ along the line with the field lights on. Bidder shall submit, as described below:
  - o Horizontal footcandles: No single point shall exceed 1.0 footcandles. Models shall represent readings taken with the meter positioned horizontal 36 inches above grade.
  - o Vertical footcandles: No single point shall exceed 1.0 footcandles. Models shall represent readings taken with the test cell positioned 36 inches above grade and aimed at the brightest light source.
  - o Candela Readings: At the roads bordering the property at 3’ above grade, the max candela reading (by fixture) shall not exceed 10,000 (candela). Readings taken with all fields illuminated.

## II. MATERIALS

### A. Pole Structural Steel

- The pole shafts shall be high strength low alloy tapered tubular steel that is equal to current ASTM A595 standards, with galvanized coating inside and out. All connections of pole sections shall be by slip fitting the top section over the lower section by a length of at least 1.5 times the diameters.
- Steel components of the poles shall be hot dip galvanized to current ASTM A-123. Steel portions of the pole shall be constructed such that all segments of the pole can be readily heated to like temperatures in commercially available galvanizing methods.
- To avoid problems of galvanize adherence to differing steel alloys, all steel components used for the pole must be of the same type steel.
- All exposed steel components of the pole shall be at least 18” above the surface of the ground to avoid exposure of the steel to the heavily moisture and oxygen laden air, both above and below the surface. There shall be a cap to cover the top of the pole so that rain will not enter the interior of the pole.
- To avoid stress corrosion of the pole, there shall be no weld points of the steel portion of the pole within 18” of the ground. The pole shall be galvanized steel.
- The poles for this project have been designed to withstand 95 mph winds based upon CBC-C standards. The premise of the wind speed criteria will be the 50 year mean recurrent isotach wind map. Applicable gust factors to be applied per code.

### B. Foundation Design

- The Manufacturer shall provide a stamped foundation design, prepared by a Structural Engineer, licensed in the State of California.
- The foundation design shall be based upon recommendations contained in the Geotechnical Report furnished by the Owner. If a Geotechnical Report is not provided by the Owner, the foundation design shall be based on soils that meet or exceed those of a Class 5 material as defined by the 2019 CBC Table 1806.2.
- It is the contractor’s responsibility to notify the owner of soil conditions other than the design criteria. The owner shall then be responsible and absorb the additional costs associated with: Providing engineered foundation

embedment design by a registered engineer in the State of California for soils other than specified soil conditions. Additional materials required to achieve alternate foundation. No direct burial steel poles allowed.

- Lightning Protection: Manufacturer shall provide integrated lightning grounding via concrete encased electrode grounding system as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A. If grounding is not integrated into the structure, the Manufacturer shall supply grounding electrodes, copper down conductors and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780. The grounding electrode shall be not less than 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.

**C. LED Sports Lighting Fixtures:**

- The lens is permanently sealed to keep optics away from harmful environmental elements. Fixture is vented and filtered to adapt to environmental elements. Heat sink with a unique convective air cooling design with high thermal conductivity and corrosion resistant construction. Machine mounted surface for maximum heat transfer of diode assembly and maintains low LED junction temperature during high wattage operation. Custom high power diode package with a metal core printed circuit board. The light control visors are factory aimed. Controls and directs more light onto the field which reduced glare and spill and enhances the on-field playability. Fixture is powder coated gray.

**D. Remote Electrical Enclosure:**

- Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. Drivers are remote for ease of installation and servicing. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure.

**E. Wire Harness:**

- Spiral wound, abrasion protection sleeve, strain relief, plug-in connections

**F. Energy Consumption:**

- The average kWh consumption for the entire facility shall not exceed 81.96kW for the lighting system.

**G. Controls and Monitoring System:**

- Factory assembled lighting control cabinet (LCC) – The LCC shall be assembled and wired by a UL listed panel builder. The LCC shall contain Contactors, Monitoring and Control System and door mounted Manual off-on-auto selector switches. The LCC shall arrive at the job site ready to attach to an existing wall, switchgear, or a free standing enclosure.
  - o Control Wire Terminations - The Control Wire Terminations shall include UL listed terminal blocks mounted on a DIN rail and 250 volt, 16 amp, touch safe type fuse holders.
  - o The ECE shall be constructed of aluminum and shall be powder coated gray. The cabinet door shall utilize a lockable, 3 point latching assembly that provides a NEMA 4 rated seal.
  - o Contactor Modules – Contactors shall be UL listed for lighting applications. They shall be rated at full capacity, be electrically held, utilize a 120 volt coil and be rated for operation in a ambient temperature range from -40 degrees C to +70 degrees C.
  - o Manual off-on-auto Selector Switches – For on site manual control, three position selector switches shall be factory mounted to the ECE door. The switches shall be keyed and maintain position, with make before break contacts. The switches shall be factory wired to control terminal blocks.
  - o Warranty – The LCC shall be covered under the standard warranty for the accompanying lighting equipment.
- Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The manufacturer shall notify the owner of outages within 24 hours, or the next business day. The controller shall determine switch position (manual or auto) and contactor status (open or closed). The Monitoring System shall be factory wired to control terminal blocks.
- Remote Lighting Control System: The Lighting Control System shall allow owners and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs. The Light Control System shall be factory wired to control terminal blocks.

### **III. WARRANTY AND FIELD TECHNICIAN**

#### **A. Warranty**

- 25-Year Warranty: Each manufacturer shall supply a signed warranty covering materials and labor for the entire system for 25 years from the date of shipment. Warranty shall specify light levels, system energy consumption, monitoring, maintenance and control services, spill light control, and structural integrity. Manufacturer shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full term. Warranty does not cover weather conditions events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers.

#### **B. Field Technician**

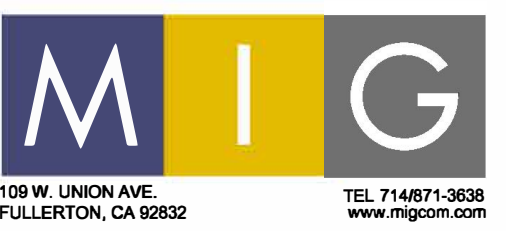
- Manufacturer shall have available a local factory trained technician to provide project support including but not limited to: Lamp replacement, confirm luminaire, aiming points, troubleshoot, and educate customer maintenance personnel.

**END OF SECTION**



# CITY OF LINDSAY

## OLIVE BOWL / KAKU PARK REVITALIZATION



CONSULTANT:

PROJECT TEAM:  
 LANDSCAPE ARCHITECT  
**MOORE IACOFANO GOLTSMAN, INC.**  
 ELECTRICAL ENGINEER  
**LRA ENGINEERS**  
 CIVIL ENGINEER  
**BKF**  
 STRUCTURAL ENGINEER  
**ISE**  
 SKATEPARK DESIGNER  
**SPOHN RANCH**

OLIVE BOWL  
KAKU  
PARK

LINDSAY, CA  
93247

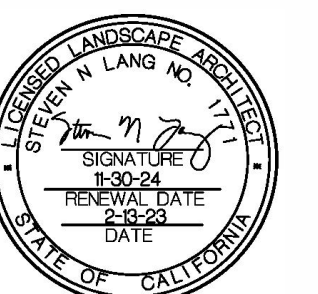
SHEET TITLE

TITLE SHEET

DATE REVISION

10-18-21	50% CD Submittal
12-8-21	90% CD Submittal
12-14-22	90% CD Submittal
2-13-23	100% CD Submittal
4-7-23	ADDENDUM #5

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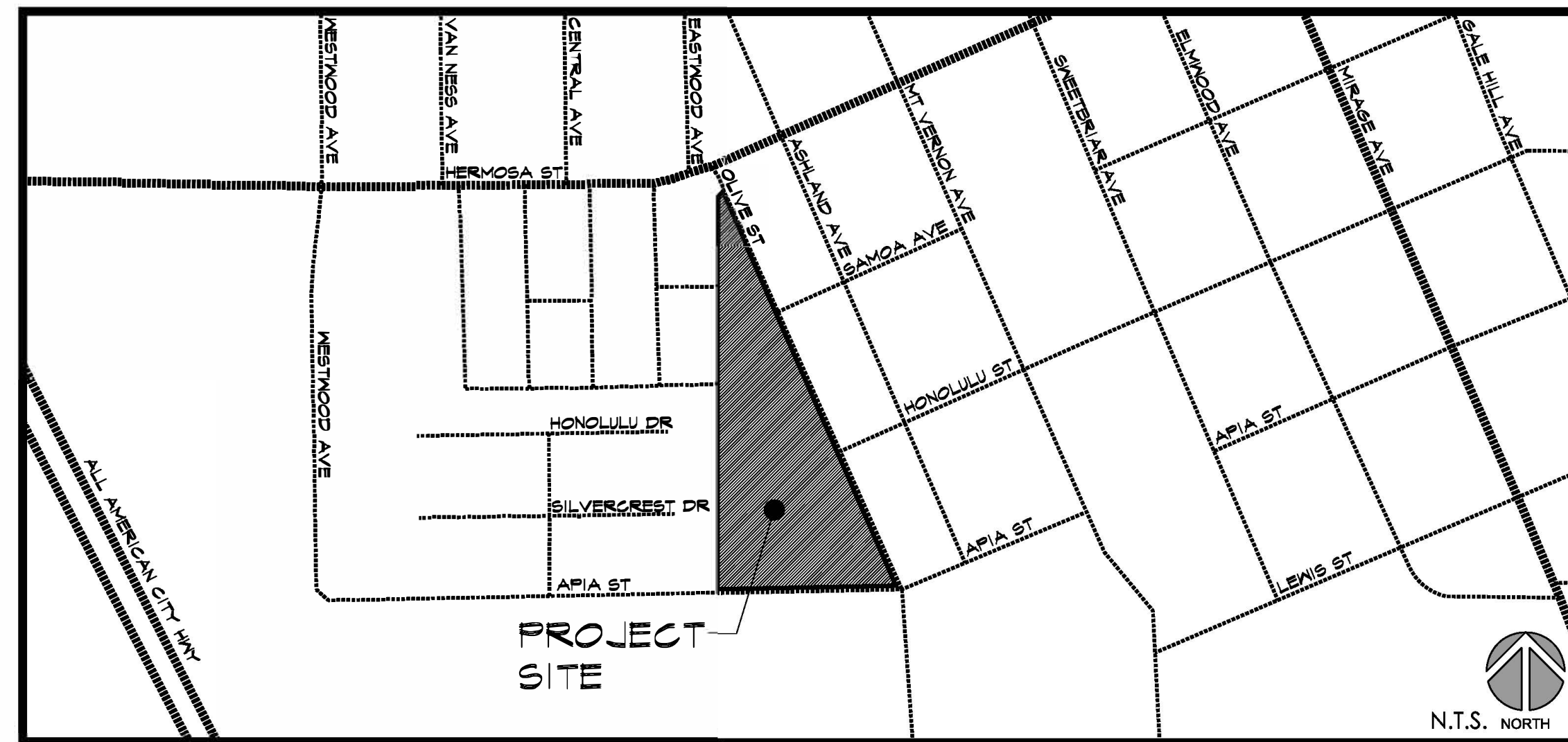


CHECKED BY	DATE
O.J.	2-13-23
DRAWN BY	JOB NO.
H.D.	05500.00

SHEET  
**T-1**  
SHEET 1 OF 85 SHEETS

### VICINITY MAP

Not to Scale



### PUBLIC UTILITIES

**WATER & SEWER**  
 CITY OF LINDSAY  
 CITY SERVICES & PLANNING DEPARTMENT  
 150 N MIRAGE AVE  
 LINDSAY, CA 93247  
 554-562-7102 EXT 4

**ELECTRICITY**  
 SOUTHERN CALIFORNIA EDISON COMPANY  
 (800) 665-4555

**GAS**  
 SOUTHERN CALIFORNIA GAS COMPANY  
 EMERGENCY CALLS  
 (818) 701-3342

**TELEPHONE**  
 AT&T  
 (877) 754-8711  
 VERIZON  
 (559) 268-2100

### ADDITIVE ALTERNATES

ADDITIVE ALTERNATE NO. 1. INCLUDE ALL LABOR, MATERIALS, SERVICES AND EQUIPMENT NECESSARY FOR COMPLETION OF THE CONSTRUCTION OF A 6' HIGH BLOCK WALL IN LIEU OF THE 6' CLF AT THE WEST SIDE OF THE PROPERTY AS INDICATED ON THE PLANS.

ADDITIVE ALTERNATE NO. 2. INCLUDE ALL LABOR, MATERIALS, SERVICES AND EQUIPMENT NECESSARY FOR COMPLETION OF THE CONSTRUCTION OF 4" CONCRETE IN LIEU OF THE STABILIZED DECOMPOSED GRANITE TRAIL AS INDICATED ON THE PLANS.

ADDITIVE ALTERNATE NO. 3. INCLUDE ALL LABOR, MATERIALS, SERVICES AND EQUIPMENT NECESSARY FOR COMPLETION OF THE CONSTRUCTION OF 7" VEHICULAR CONCRETE PAVING IN LIEU OF ASPHALT PAVING AT THE WEST SIDE OF THE SITE AS INDICATED ON THE PLANS.

ADDITIVE ALTERNATE NO. 4. INCLUDE ALL LABOR, MATERIALS, SERVICES AND EQUIPMENT NECESSARY FOR COMPLETION OF THE CONSTRUCTION OF SYNTHETIC TURF SURFACING AT THE BULL PENS IN LIEU OF DG AS INDICATED ON THE PLANS.

### DRAWING INDEX

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36.	L3.6	IRRIGATION DETAILS	79.	E-1.1	PARTIAL ELECTRICAL SITE PLAN
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42.	LD-1	CONSTRUCTION DETAILS	85.	E-5.0	SITE LIGHTING PHOTOMETRIC
43.	LD-2	CONSTRUCTION DETAILS			

### PROJECT TEAM

LANDSCAPE ARCHITECT	MOORE IACOFANO GOLTSMAN, INC. 109 W. UNION AVE. FULLERTON, CA 92831 TEL: 714/871-3638	ELECTRICAL ENGINEER	LRA ENGINEERS 1326 BOTTLEBRUSH STREET CORONA, CA 92882 TEL: 951/737-4569
CIVIL ENGINEER	BKF 4675 MACARTHUR CT SUITE 400 NEWPORT BEACH, CA 92660 TEL: 949/526-8487	SKATE PARK DESIGNER	SPOHN RANCH SKATEPARKS 6824 S. CENTINELA LOS ANGELES, CA 90230 TEL: 626-330-5803

CITY OF LINDSAY APPROVAL

\_\_\_\_\_  
CITY SERVICES & PLANNING DIRECTOR

\_\_\_\_\_  
DATE



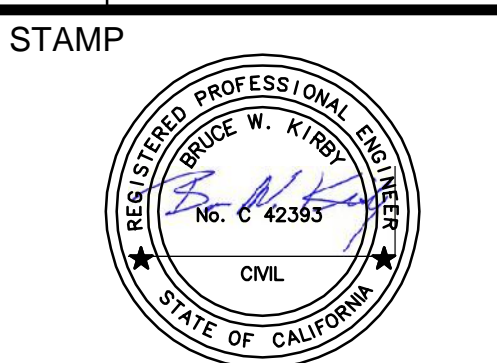


**OLIVE BOWL  
KAKU  
PARK**

LINDSAY, CA  
93247

**SITE IMPROVEMENT PLAN**

DATE	REVISION
10-18-21	50% CD Submittal
12-8-21	90% CD Submittal
12-14-22	90% CD Submittal
2-13-23	100% CD Submittal
4-07-23	Addendum #5



CHECKED BY	DATE
B.K.	2-13-23
DRAWN BY	JOB NO.
V.L.	05500.00

SHEET

**C4.0**

SHEET 11 OF 85 SHEETS

MATCHLINE - SEE BELOW, LEFT.



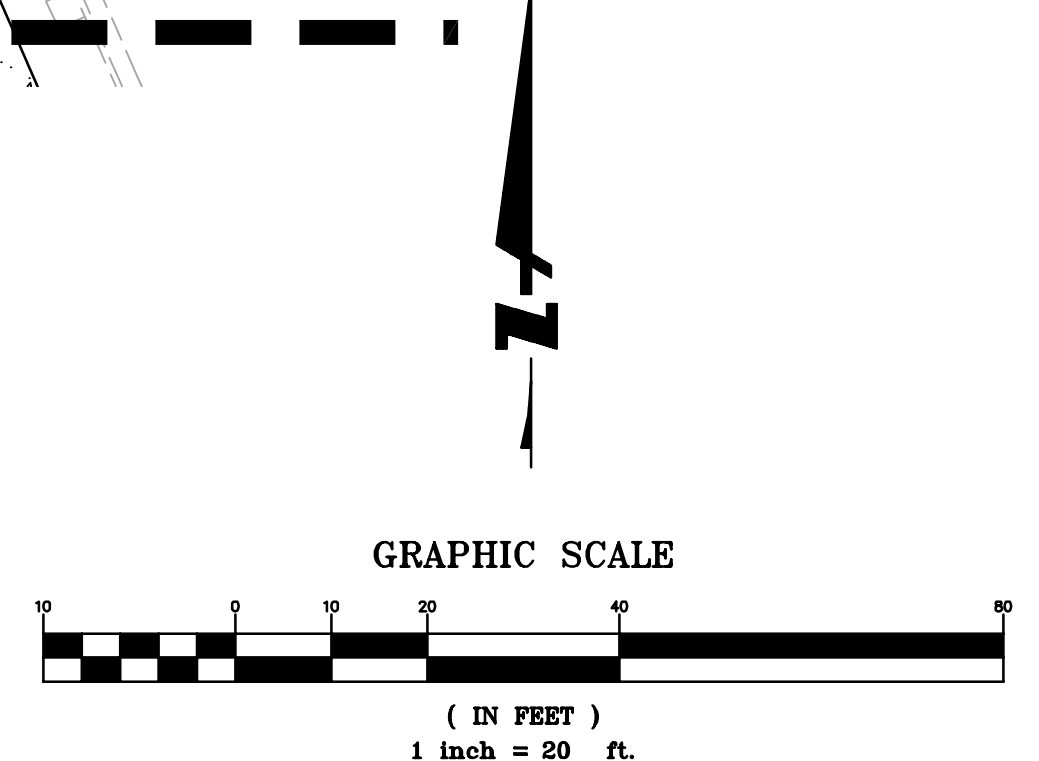
MATCHLINE - SEE ABOVE, RIGHT.

MATCHLINE - REFER TO SHEET C4.1

- LEGEND:**
- MATCH LINE
  - FENCE
  - FENCE (ADD ALTERNATIVE 6' BLOCK WALL)
  - AC PAVEMENT
  - STABILIZED DECOMPOSED GRANITE
  - PEDESTRIAN CONCRETE
  - RUBBERIZED SURFACE
  - GENERAL TURF
  - HEAVY DUTY CONCRETE
  - BIO-FILTRATION BASIN
  - PLAY FIELD
  - BUILDING
  - PLANTING AREA
  - AC PAVEMENT (ADD ALTERNATIVE 7" CONCRETE)
  - STABILIZED DECOMPOSED GRANITE (ADD ALTERNATIVE 4" CONCRETE)

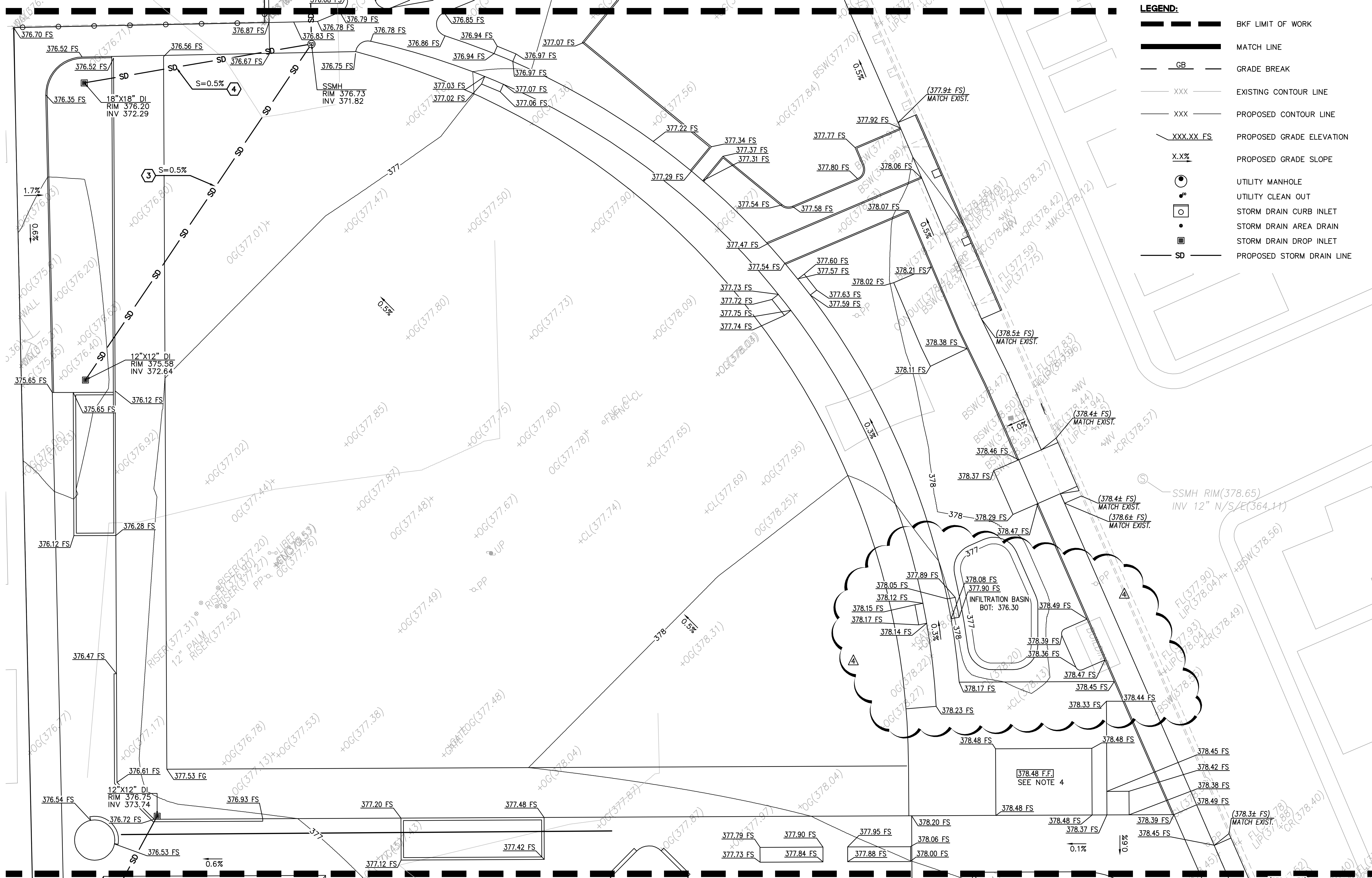
- CONSTRUCTION NOTES:**
- 1 JOIN EXISTING PAVEMENT
  - 2 CONSTRUCT CURB & GUTTER PER DETAIL 8/C8.0
  - 3 CONSTRUCT AC PAVEMENT PER DETAIL 2/C8.0
  - 4 CONSTRUCT STABILIZED DECOMPOSED GRANITE PER LANDSCAPE PLANS
  - 5 CONSTRUCT FIELD PER LANDSCAPE DRAWINGS
  - 6 CONSTRUCT CURB RAMP PER DETAIL 2 (CASE A)/C8.1
  - 7 CONSTRUCT ACCESSIBLE STALL AND MARKINGS PER DETAIL 5/C8.0
  - 8 CONSTRUCT CURB INLET PER DETAIL 6/C8.0
  - 9 PAINT 4" WIDE PARKING STALL STRIPE. COLOR PER LANDSCAPE PLANS.
  - 10 CONSTRUCT DRIVEWAY PER DETAIL 1/C8.0
  - 11 CONSTRUCT STORM DRAIN INLET PER DETAIL 4/C8.0
  - 12 LANDSCAPING PER LANDSCAPE PLANS
  - 13 RUBBERIZED SURFACE MATERIAL PER LANDSCAPE PLANS
  - 14 RUBBERIZED RAMP PER LANDSCAPE PLANS
  - 15 TRASH ENCLOSURE PER CITY STANDARD MI-1
  - 16 CONSTRUCT CURB PER DETAIL 1/C8.1
  - 17 CONSTRUCT CMU WALL TO MATCH EXISTING
  - 18 CONSTRUCT MOW CURB PER LANDSCAPE PLANS
  - 19 PROPOSED RESTROOM/CONCESSION BUILDING PER LANDSCAPE PLANS
  - 20 PROPOSED BIO-FILTRATION BASIN PER GRADING PLAN
  - 21 RELOCATED SIGN, SEE LANDSCAPE PLANS
  - 22 CONSTRUCT STORM DRAIN MANHOLE PER DETAIL 5/C8.1
  - 23 CONSTRUCT CONCRETE PAVEMENT PER LANDSCAPE DRAWINGS
  - 24 CONSTRUCT PLAY AREA CURB PER LANDSCAPE DRAWINGS

- NOTES:**
1. ALL DIMENSIONS ON THE PLANS ARE IN FEET OR DECIMALS THEREOF UNLESS SPECIFICALLY CALLED OUT AS FEET AND INCHES.
  2. THIS IS NOT A STAKING PLAN BUT A CHECK AND VERIFICATION OF THE MAJOR DIMENSIONS AS SHOWN ON THE ARCHITECTURAL SITE PLAN.
  3. ALL DIMENSIONS SHOWN ARE TO FACE OF CURB, FACE OF WALL, PROPERTY OR RIGHT-OF-WAY LINE, OR CENTER OF DRIVEWAYS.
  4. SEE ARCHITECTURAL FLOOR PLANS FOR ALL BUILDING DIMENSIONS.





MATCHLINE - REFER TO SHEET C5.0



**LEGEND:**

	BKF LIMIT OF WORK
	MATCH LINE
	GB GRADE BREAK
	EXISTING CONTOUR LINE
	PROPOSED CONTOUR LINE
	PROPOSED GRADE ELEVATION
	PROPOSED GRADE SLOPE
	UTILITY MANHOLE
	UTILITY CLEAN OUT
	STORM DRAIN CURB INLET
	STORM DRAIN AREA DRAIN
	STORM DRAIN DROP INLET
	PROPOSED STORM DRAIN LINE

**MIG**  
 109 W. UNION AVE.  
 FULLERTON, CA 92832  
 TEL: 714.971.3638  
 www.mig.com

**CONSULTANT:**  
**BKF**  
 4675 MACARTHUR CT.  
 SUITE 400  
 NEWPORT BEACH, CA 92660  
 (949) 526-9400  
 www.bkf.com

**PROJECT TEAM:**  
 LANDSCAPE ARCHITECT  
**MOORE IACOFANO GOLTSMAN, INC.**  
 ELECTRICAL ENGINEER  
**LRA ENGINEERS**  
 CIVIL ENGINEER  
**BKF**  
 STRUCTURAL ENGINEER  
**ISE**  
 SKATEPARK DESIGNER  
**SPOHN RANCH**

**OLIVE BOWL  
 KAKU  
 PARK**

LINDSAY, CA  
 93247

**GRADING & DRAINAGE PLAN**

DATE	REVISION
10-18-21	50% CD Submittal
12-8-21	90% CD Submittal
12-14-22	90% CD Submittal
2-13-23	100% CD Submittal
4-07-23	Addendum #5


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DRAWN BY	JOB NO.
V.L.	05500.00

SHEET  
**C5.1**  
 SHEET 15 OF 85 SHEETS

- NOTES:**
- ALL DESIGN ELEVATIONS SHOWN ON THE GRADING SHEETS ARE TO FINISHED GRADE, UNLESS OTHERWISE NOTED.
  - ALL EXISTING UTILITY STRUCTURES WITHIN GRADING LIMITS SHALL BE ADJUSTED TO NEW PROPOSED GRADES.
  - GRADING SHALL NOT EXCEED A 4:1 MAXIMUM SLOPE.
  - SEE LANDSCAPE PLANS FOR PAD ELEVATION

- CONSTRUCTION NOTES:**
- INSTALL 3" SDR35 PVC PIPE AND FITTINGS
  - INSTALL 6" SDR35 PVC PIPE AND FITTINGS
  - INSTALL 10" SDR35 PVC PIPE AND FITTINGS
  - INSTALL 12" SDR35 PVC PIPE AND FITTINGS
  - INSTALL 15" SDR35 PVC PIPE AND FITTINGS
  - INSTALL MITERED DRAIN PER DETAIL 3, SHEET C8.1
  - INSTALL CURB DRAIN PER DETAIL 6, SHEET C8.1 USE THE CENTERLINE OF DETAIL AT THIS LOCATION.

MATCHLINE - REFER TO SHEET C5.2

**GRAPHIC SCALE**  
 ( IN FEET )  
 1 inch = 20 ft.



**SYMBOLS LEGEND:**

- BALL FIELD TURF
- STABILIZED D.G.
- INFIELD STABILIZED D.G.
- 4" CONCRETE
- 7" CONCRETE
- A.C. PAVEMENT
- RUBBERIZED SURFACING
- GENERAL TURF
- BASIN TURF
- PLANTING AREA
- NEW TREE
- EXISTING TREE

REFER TO SHEET L2.3 FOR CONSTRUCTION NOTES.



CONSULTANT:

PROJECT TEAM:  
 LANDSCAPE ARCHITECT  
**MOORE JACOFANO GOLTSMAN, INC.**  
 ELECTRICAL ENGINEER  
**LRA ENGINEERS**  
 CIVIL ENGINEER  
**BKF**  
 STRUCTURAL ENGINEER  
**ISE**  
 SKATEPARK DESIGNER  
**SPOHN RANCH**

**OLIVE BOWL KAKU PARK**

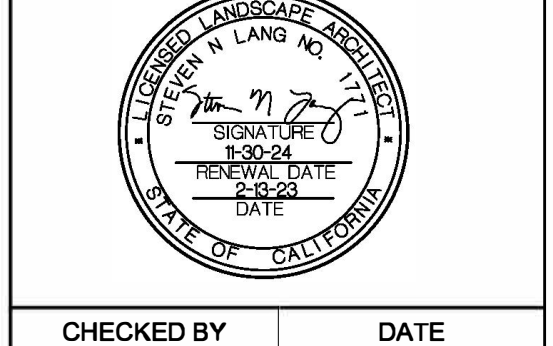
LINDSAY, CA 93247

**SHEET TITLE**

**CALLOUT PLAN**

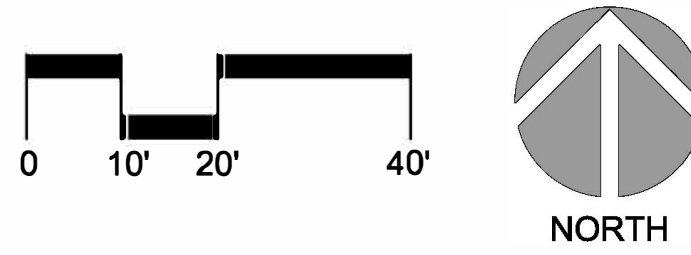
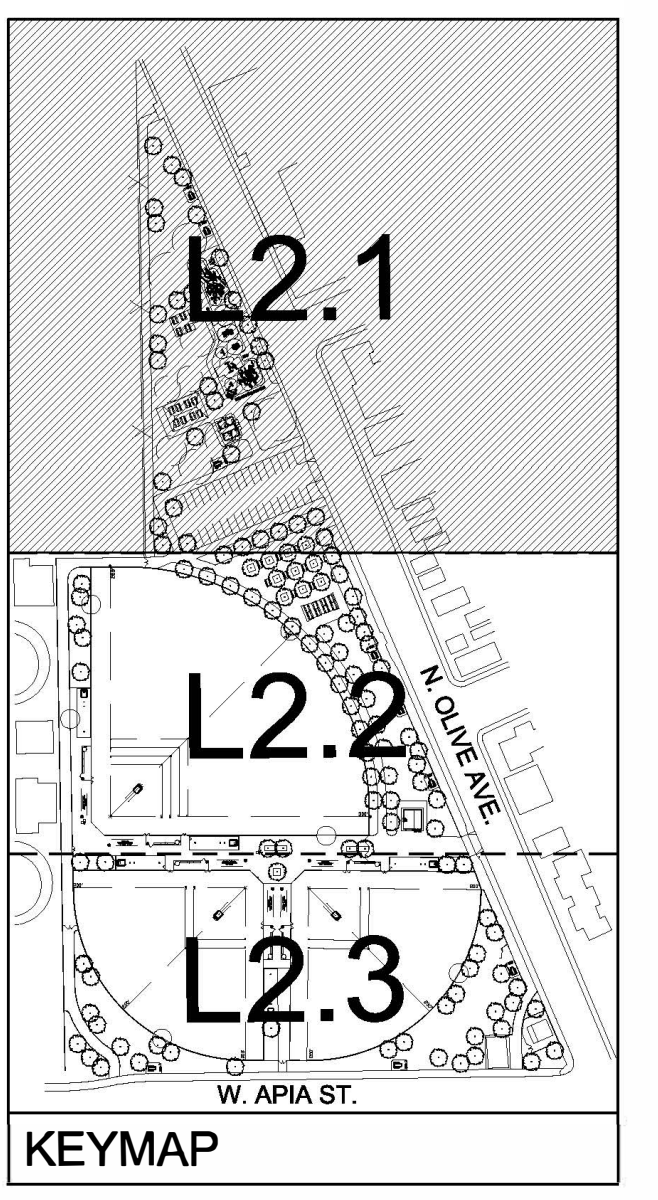
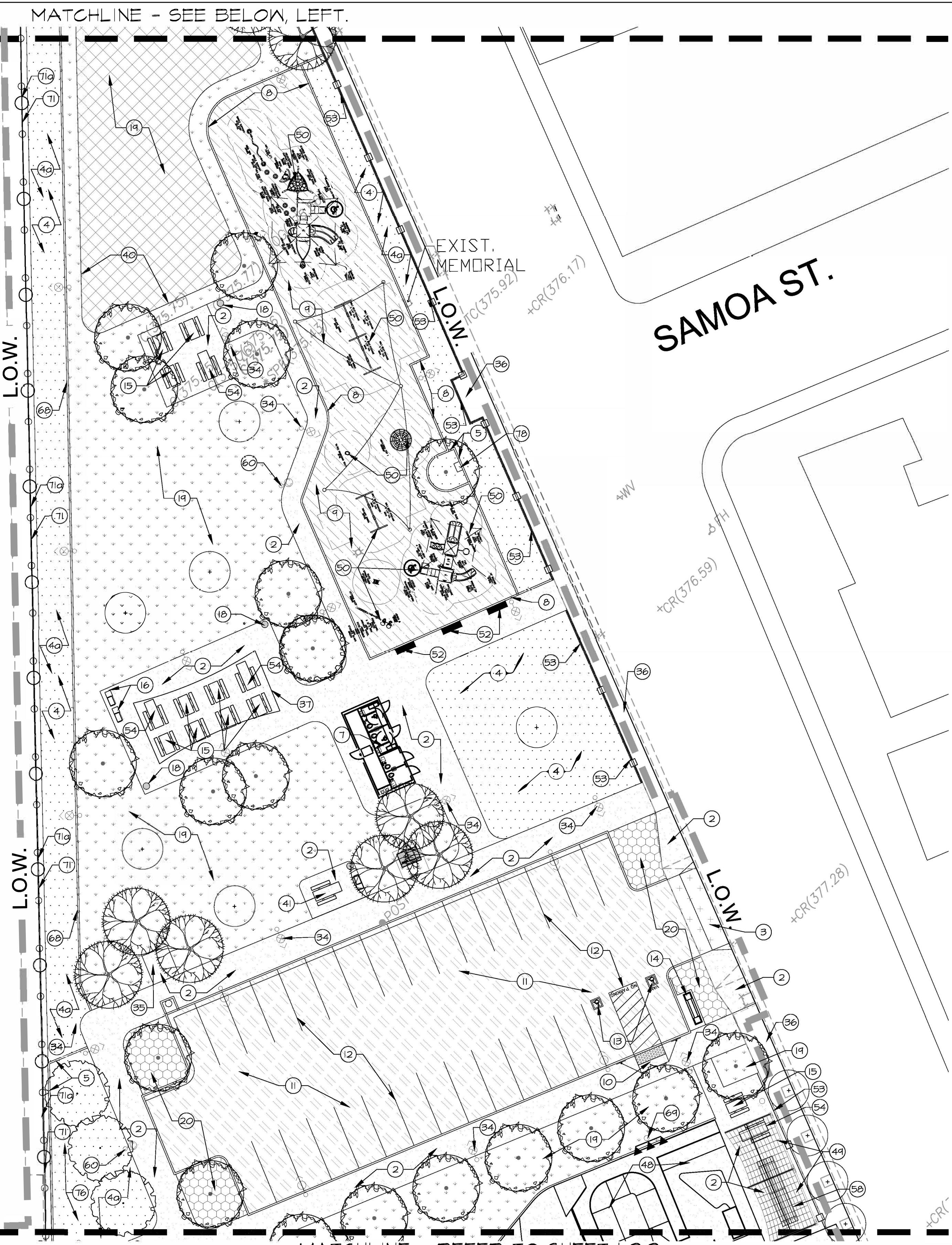
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2-13-23	100% CD Submittal
4-7-23	ADDENDUM #5

**STAMP**



CHECKED BY	DATE
O.J.	2-13-23
DRAWN BY	JOB NO.
H.D.	05500.00

**SHEET L2.1**  
 SHEET 26 OF 85 SHEETS



**DIGALERT**  
 DIAL TOLL FREE 1-800-422-4133  
 AT LEAST TWO DAYS BEFORE YOU DIG  
 UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

- 33 FITNESS EQUIPMENT BY TRIACTIVE USA. MULTI BENCH, MODEL #PHRS. CONTACT LUCAS RIPHAGEN, TEL: (800)504-0547. INSTALL PER MANUF. SPEC. SEE CONSTRUCTION NOTES FOR ADDITIONAL INFO.
- 34 FITNESS EQUIPMENT BY TRIACTIVE USA. MULTI BARS, MODEL #MBAR. CONTACT LUCAS RIPHAGEN, TEL: (800)504-0547. INSTALL PER MANUF. SPEC. SEE CONSTRUCTION NOTES FOR ADDITIONAL INFO.
- 35 FITNESS EQUIPMENT BY TRIACTIVE USA. BACK EXTENSION, MODEL #BEXT. CONTACT LUCAS RIPHAGEN, TEL: (800)504-0547. INSTALL PER MANUF. SPEC. SEE CONSTRUCTION NOTES FOR ADDITIONAL INFO.
- 36 FITNESS EQUIPMENT BY TRIACTIVE USA. HORIZONTAL BAR, MODEL #HBAR. CONTACT LUCAS RIPHAGEN, TEL: (800)504-0547. INSTALL PER MANUF. SPEC. SEE CONSTRUCTION NOTES FOR ADDITIONAL INFO.
- 37 FITNESS EQUIPMENT BY TRIACTIVE USA. PULL UP AND DIP STATION, MODEL #PDIP. CONTACT LUCAS RIPHAGEN, TEL: (800)504-0547. INSTALL PER MANUF. SPEC. SEE CONSTRUCTION NOTES FOR ADDITIONAL INFO.
- 38 PERMALOC CLEANLINE ALUMINUM EDGINGS, SIZE 2" X 4", COLOR: MILL FINISH OR EQUAL. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- 39 SKATE PARK LIGHTING POLES. REFER TO ELECTRICAL PLANS.
- 40 2-5, 5-12 PLAY AREA #2 AT BALLFIELD BY GAMETIME. AVAILABLE THROUGH GREAT WESTERN PH:495-245-5055. SEE QUOTE #103562-01-04. INSTALL PER MANUF. SPEC.
- 41 6' HIGH GALV. CHAIN LINK FENCE (CLF). REFER TO DETAIL 'E', SHEET LD-6.
- 42 ADD ALT #1. 6' HIGH BLOCK WALL. REFER TO DETAIL 'K', SHEET LD-1.
- 43 BATTING CASE. REFER TO DETAIL 'K', SHEET LD-12.
- 44 FIELD DRAINAGE. REFER TO CIVIL PLANS.
- 45 EXISTING OLIVE BOWL SIGNAGE TO BE REMOVED, RELOCATED AND RENOVATED TO OUTFIELD OF FIELD #1. 4' NEW PEDESTAL MEMORIAL. REFER TO DETAIL 'E', LD-4.
- 46 BATTER'S EYE SCREEN. 6' HIGH BLACK TURF WINDSCREEN BY BSN SPORTS. ATTACH TO TOP OF C.L.F.F. 40' WIDE. INSTALL PER MANUF. SPEC.
- 47 DECOMPOSED GRANITE FOR PLANTING AREA. REFER TO DETAIL 'C', SHEET LD-1.
- 48 CANTILEVERED FABRIC SHADE SHELTER AT BASEBALL BLEACHERS AVAILABLE THROUGH GREAT WESTERN, PH:495-245-5055. SEE QUOTE #103562-01-04. INSTALL PER MANUF. SPEC.
- 49 EXISTING MEMORIAL AND PEDESTAL AT PLAYGROUND TO BE REMOVED, RELOCATED AND INSTALLED AT GRADE.

MATCHLINE - SEE BELOW, LEFT.

MATCHLINE - SEE ABOVE, RIGHT.

L.O.W.

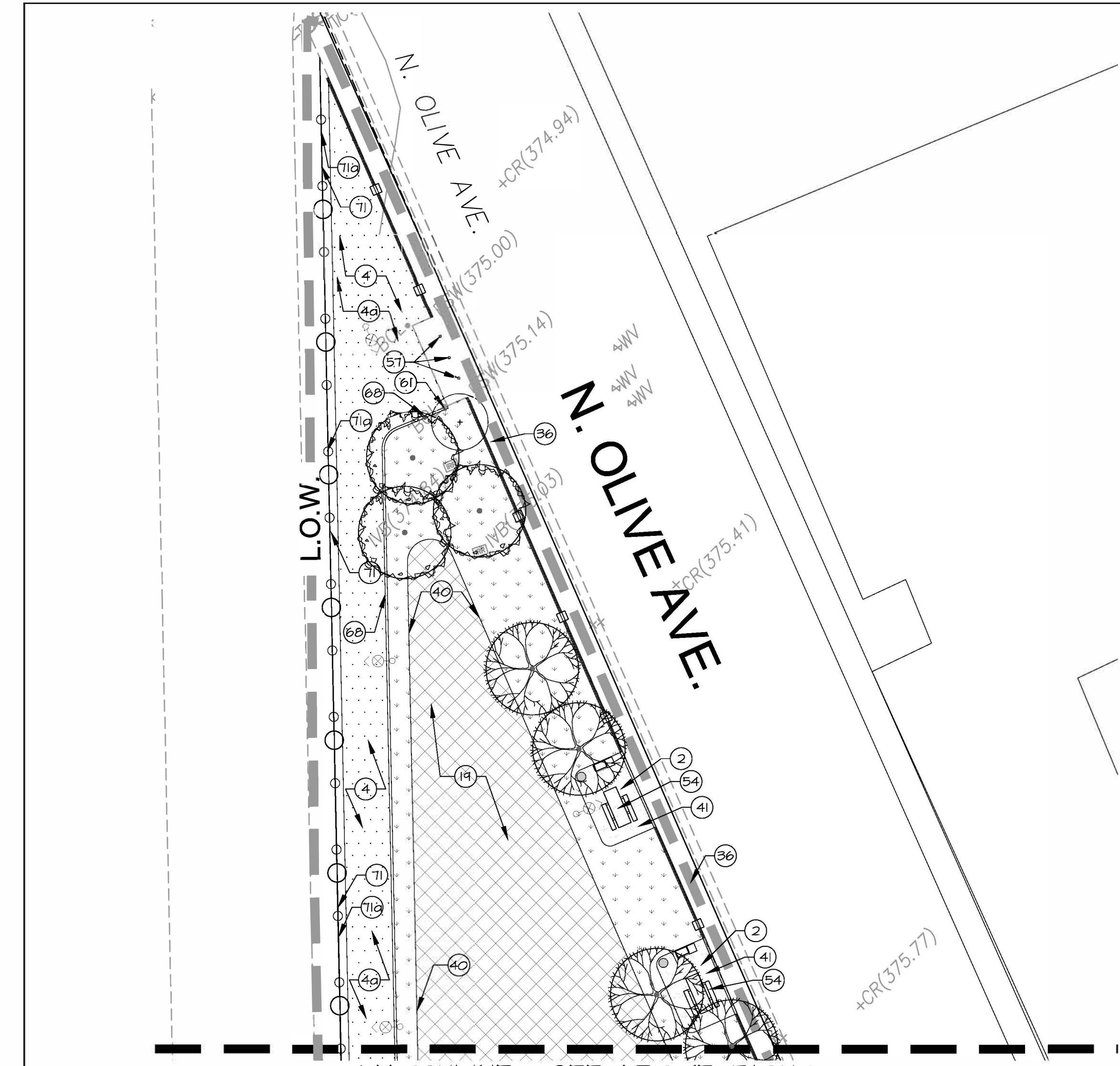
L.O.W.

L.O.W.

MATCHLINE - REFER TO SHEET L2.2

L.O.W.

L.O.W.



**CONSTRUCTION LEGEND:**

- 1 CONCESSION/RESTROOM/STORAGE BLDG. REFER TO DETAIL 'A', SHEET LD-10.
- 2 4" THICK CONCRETE PAVING. REFER TO DETAIL 'A', SHEET LD-1.
- 3 7" THICK VEHICULAR CONCRETE PAVING. REFER TO DETAIL 'B', SHEET LD-1.
- 4 STABILIZED DECOMPOSED GRANITE. REFER TO DETAIL 'C', SHEET LD-1.
- 4A ADD ALT #2. 4" THICK CONCRETE PAVING. REFER TO DETAIL 'A', SHEET LD-1.
- 5 6" CONCRETE MONDBAND. REFER TO DETAIL 'E', SHEET LD-1.
- 6 9" CONCRETE MONDBAND. REFER TO DETAIL 'F', SHEET LD-1 & 'E', SHEET LD-6.
- 7 RESTROOM BLDG. REFER TO DETAIL 'A', SHEET LD-11.
- 8 PLAY AREA CURB. REFER TO DETAIL 'E', SHEET LD-5.
- 9 RUBBERIZED SURFACING. REFER TO DETAIL 'E', SHEET LD-5.
- 10 ADA ACCESS RAMP. REFER TO CIVIL PLANS.
- 11 A.C. PAVING. REFER TO CIVIL PLANS.
- 11A ADD ALT #3. 7" THICK VEHICULAR CONCRETE PAVING. REFER TO DETAIL 'B', SHEET LD-1.
- 12 PARKING STRIPINGS. REFER TO CIVIL PLANS.
- 13 ADA PARKING. REFER TO CIVIL PLANS.
- 14 ENTRY MONUMENT SIGN. REFER TO DETAIL 'C', SHEET LD-2.
- 15 PARK PICNIC TABLE BY GCP, INC. MODEL#QBT2PT. COLOR:NATURAL. REFER TO MANUFACTURER'S SPECIFICATION AND INSTALLATION.
- 16 FAMILY BBQ AND PREP TABLE BY GCP, INC. MODEL#QC-BBQ124-FPC. REFER TO DETAIL 'B', SHEET LD-2. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
- 17 HI-LOW DRINKING FOUNTAIN WITH PET FOUNTAIN BY HANS. MODEL#3500D. REFER TO DETAIL '1', SHEET LD-1.
- 18 TRASH RECEPTACLE BY VICTOR STANLEY. MODEL#DYN-36. REFER TO DETAIL 'G', SHEET LD-1 FOR CONCRETE PAD. INSTALL PER MANUFACTURER'S SPECS.
- 19 TURF AREA. REFER TO PLANTING PLAN.
- 20 PLANTED AREA. REFER TO PLANTING PLAN.
- 21 BIKE RACK BY DUNOR, MODEL #24000/5-2. INSTALL PER MANUF. SPEC.
- 22 8' HIGH GALV. CHAIN LINK FENCE (CLF) WITH CONC. MONDBAND. REFER TO DETAIL 'E', SHEET LD-6.
- 23 8' HIGH GALV. SINGLE CHAIN LINK GATE. REFER TO DETAIL 'K', SHEET LD-6.
- 24 8' HIGH GALV. DOUBLE CHAIN LINK GATE. REFER TO DETAIL 'L', SHEET LD-6.
- 25 30' HIGH GALV. CHAIN LINK BACKSTOP WITH HOOD. REFER TO DETAIL 'B', SHEET LD-7.
- 26 30' H CHAINLINK BACKSTOP FOOTINGS. REFER TO DETAIL 'E', SHEET LD-7.
- 27 INFIELD MIX. REFER TO DETAIL 'J', SHEET LD-7.
- 28 INFIELD ENLARGEMENT. REFER TO DETAIL 'A & B', SHEET LD-8.
- 29 DUGOUT. REFER TO DETAIL '1 & K', SHEET LD-4.
- 30 30' FOUL BALL POLE BY TOMARK. FOOTING MOUNTED, MODEL: TB-K-30241. REFER TO MANUF SPEC FOR INSTALLATION, REFER TO DETAIL 'D', SHEET LD-6.
- 31 4-ROW ALUMINUM SPECTATOR BLEACHERS WITH 2 DOUBLE WHEEL CHAIR SPACE BY KAY PARK REC. MODEL#BLA42TV4F4 AHR48 2DVC. INSTALL PER MANUFACTURER'S SPECS.
- 32 SPORTS FIELD LIGHTING POLES. REFER TO ELECTRICAL PLANS.
- 33 ELECTRONIC SCOREBOARD BY DAKTRONICS. FIELD #1 MODEL BA-2022 WITH ARCH TRUSS LETTERINGS AND AD/ID PANEL. FIELD #2 & #3 MODEL BA-2519. SUBMIT DESIGNS FOR FINAL APPROVAL. REFER TO MANUF SPEC FOR INSTALLATION. REFER TO DETAIL 'J', SHEET LD-6. CONTRACTOR TO PROVIDE STRUCTURAL FOOTING DESIGN FOR FIELD #1 SCOREBOARD.
- 34 PEDESTRIAN LIGHTING. REFER TO ELECTRICAL PLANS.
- 35 ELECTRICAL EQUIPMENT. REFER TO ELECTRICAL PLANS.
- 36 EXISTING SIDEWALK TO REMAIN. PROTECT IN PLACE.
- 37 RELOCATED SHADE STRUCTURE. REFER TO CIVIL PLANS.
- 38 TRASH ENCLOSURE. REFER TO DETAIL 'B & F', SHEET LD-3.
- 39 NOT USED.
- 40 INFILTRATION BASIN. REFER TO CIVIL PLANS.
- 41 PICNIC PAD LAYOUT. REFER TO DETAIL 'H', SHEET LD-1.
- 42 BULLPEN. REFER TO DETAIL 'A', SHEET LD-4.
- 43A ADD ALT #4. SYNTHETIC TURF IN BULLPEN. REFER TO DETAIL 'A', SHEET LD-7.
- 44 6' HIGH GALV. SINGLE CHAIN LINK GATE. REFER TO DETAIL 'K', SHEET LD-6.
- 45 6' HIGH GALV. DOUBLE CHAIN LINK GATE. REFER TO DETAIL 'L', SHEET LD-6.
- 46 30' HIGH SAFETY NETTINGS. REFER TO DETAIL 'C', SHEET LD-6.
- 47 20' HIGH GALV. CHAIN LINK BACKSTOP WITH HOOD. REFER TO DETAIL 'D', SHEET LD-1.
- 48 BACKSTOP WINGS. REFER TO DETAIL '1', SHEET LD-7.
- 49 SKATE PARK. REFER TO SHEET SK10 THROUGH SK4.2 AND CIVIL PLANS.
- 50 CANTILEVERED FABRIC SHADE SHELTER AT SKATE PARK AVAILABLE THROUGH GREAT WESTERN, PH:495-245-5055. SEE QUOTE #103562-01-04. INSTALL PER MANUF. SPEC.
- 51 2-5, 5-12 PLAY AREA #3 AT BALLFIELDS BY UNIVERSAL PRECAGE. AVAILABLE THROUGH MIRACLE PLAYGROUNDS, PH:800-264-1229. SEE QUOTE #P5 352. INSTALL PER MANUF. SPEC.
- 52 PARK BENCH BY VICTOR STANLEY. MODEL#RB-28. SURFACE MOUNT, COLOR: BLACK. REFER TO DETAIL 'J', SHEET LD-1.
- 53 4' HIGH TUBE STEEL FENCE. REFER TO DETAIL 'A', SHEET LD-2.
- 54 ADA PICNIC TABLE BY GCP, INC. MODEL#QBT1020ADA.
- 55 PRECAST CONCRETE SEATWALL WITH RECYCLE LUMBER SEAT TOPPER. REFER TO DETAIL 'A', SHEET LD-3.
- 56 3-ROW ALUMINUM SPECTATOR BLEACHERS BY KAY PARK REC. MODEL#BLA5A15. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
- 57 COLLAPSIBLE BOLLARD BY TRAFFIC GUARD. MODEL#HRP36. COLOR: YELLOW. REFER TO DETAIL 'F', SHEET LD-2. INSTALL PER MANUF SPEC.
- 58 3-ROW ALUMINUM SPECTATOR BLEACHERS BY KAY PARK REC. MODEL#BLA5A21. INSTALL PER MANUF SPEC.
- 59 FLAG POLE BY STEELCRAFT. MODEL#EC45. REFER TO DETAIL 'E', SHEET LD-3. INSTALL PER MANUF SPEC.
- 60 SECURITY CAMERA. REFER TO ELECTRICAL PLANS.
- 61 FET WASTE BAG DISPENSER. BELSON D051POT STATION #DP-1003-L (3) TOTAL. CONTACT BELSON OUTDOORS INC, TEL: (800) 323-5664. INSTALL PER MANUF. SPECS.
- 62 FITNESS EQUIPMENT BY TRIACTIVE USA. PARALLEL BARS, MODEL #PBAR. CONTACT LUCAS RIPHAGEN, TEL: (800)504-0547. INSTALL PER MANUF. SPEC. SEE CONSTRUCTION NOTES FOR ADDITIONAL INFO.



CONSULTANT:

PROJECT TEAM:  
LANDSCAPE ARCHITECT  
**MOORE IACOFANO GOLTSMAN, INC.**  
ELECTRICAL ENGINEER  
**LRA ENGINEERS**  
CIVIL ENGINEER  
**BKF**  
STRUCTURAL ENGINEER  
**ISE**  
SKATEPARK DESIGNER  
**SPOHN RANCH**

OLIVE BOWL  
KAKU  
PARK

LINDSAY, CA  
93247

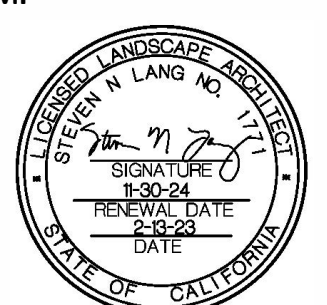
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CONSTRUCTION  
DETAILS

DATE	REVISION
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4-7-23 ADDENDUM #5

STAMP

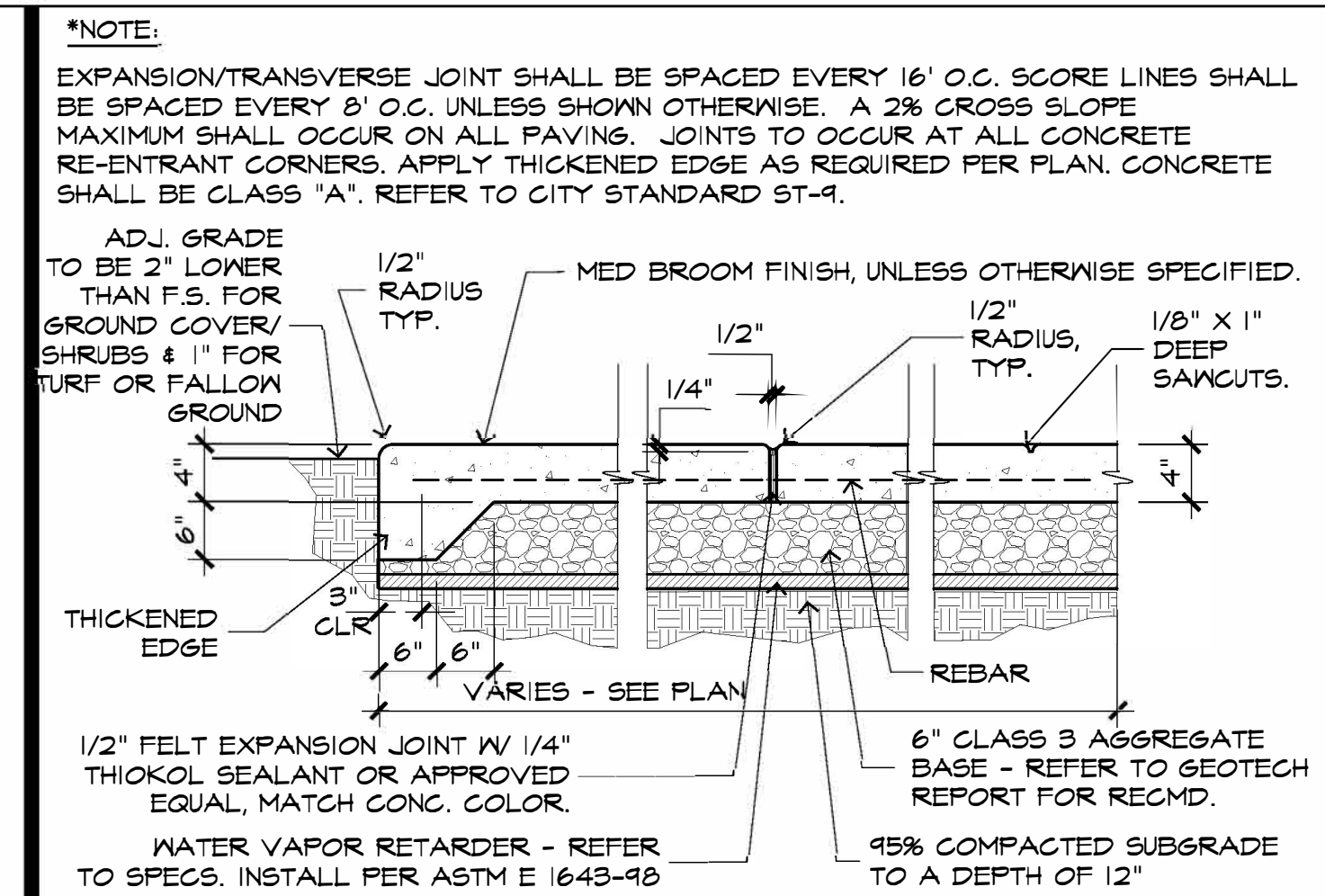


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H.D.	05500.00

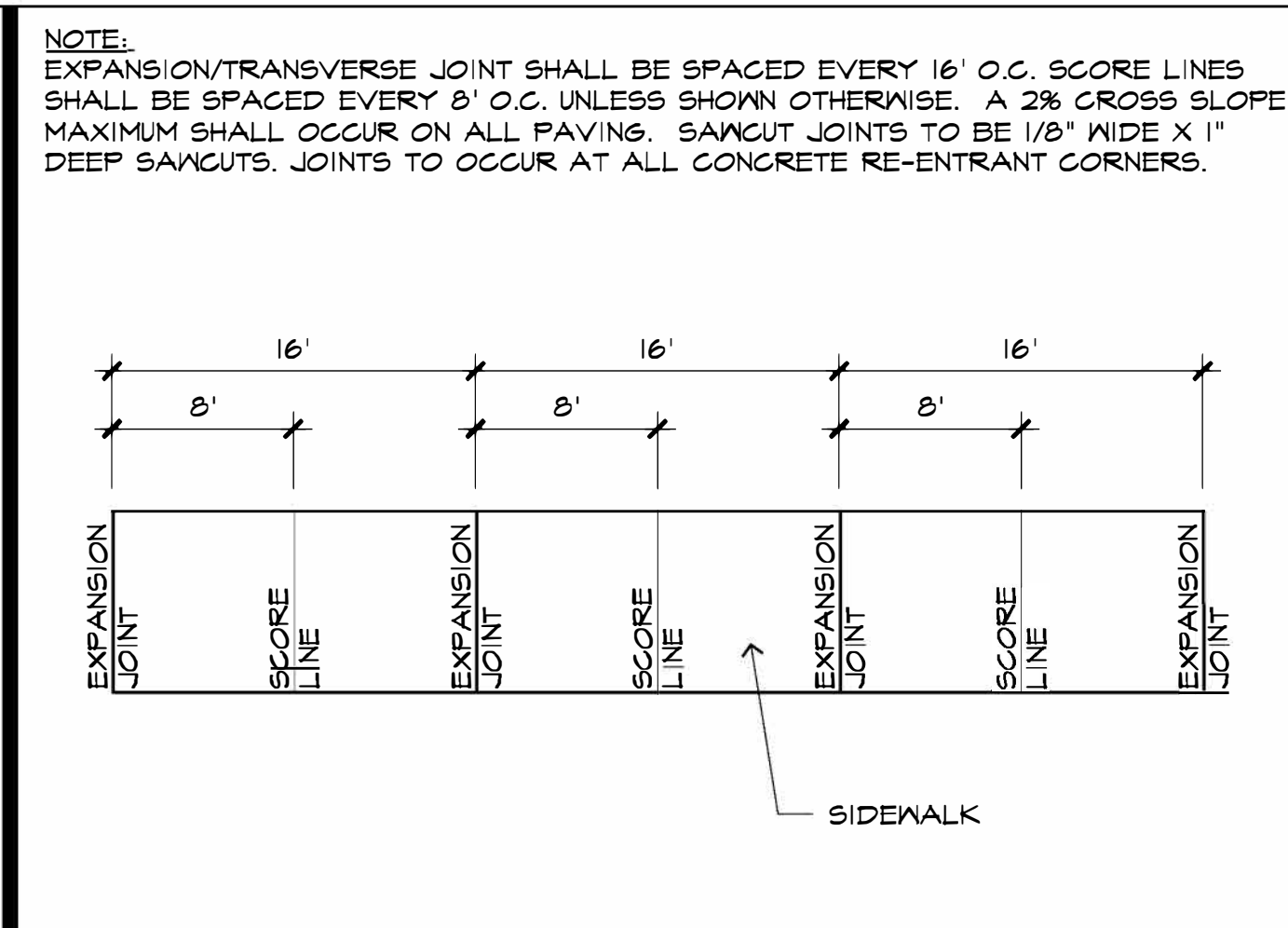
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LD-1

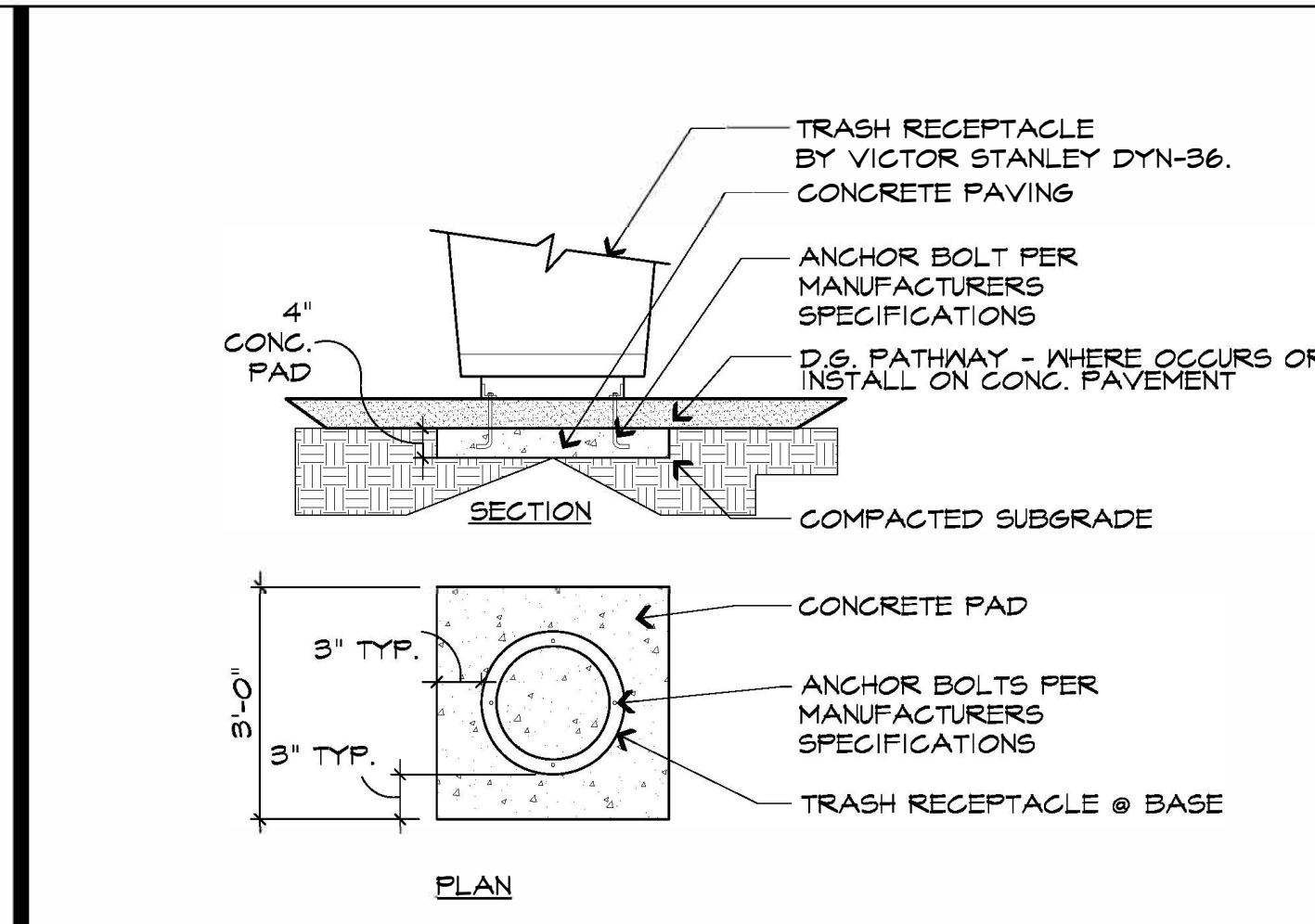
SHEET 42 OF 85 SHEETS



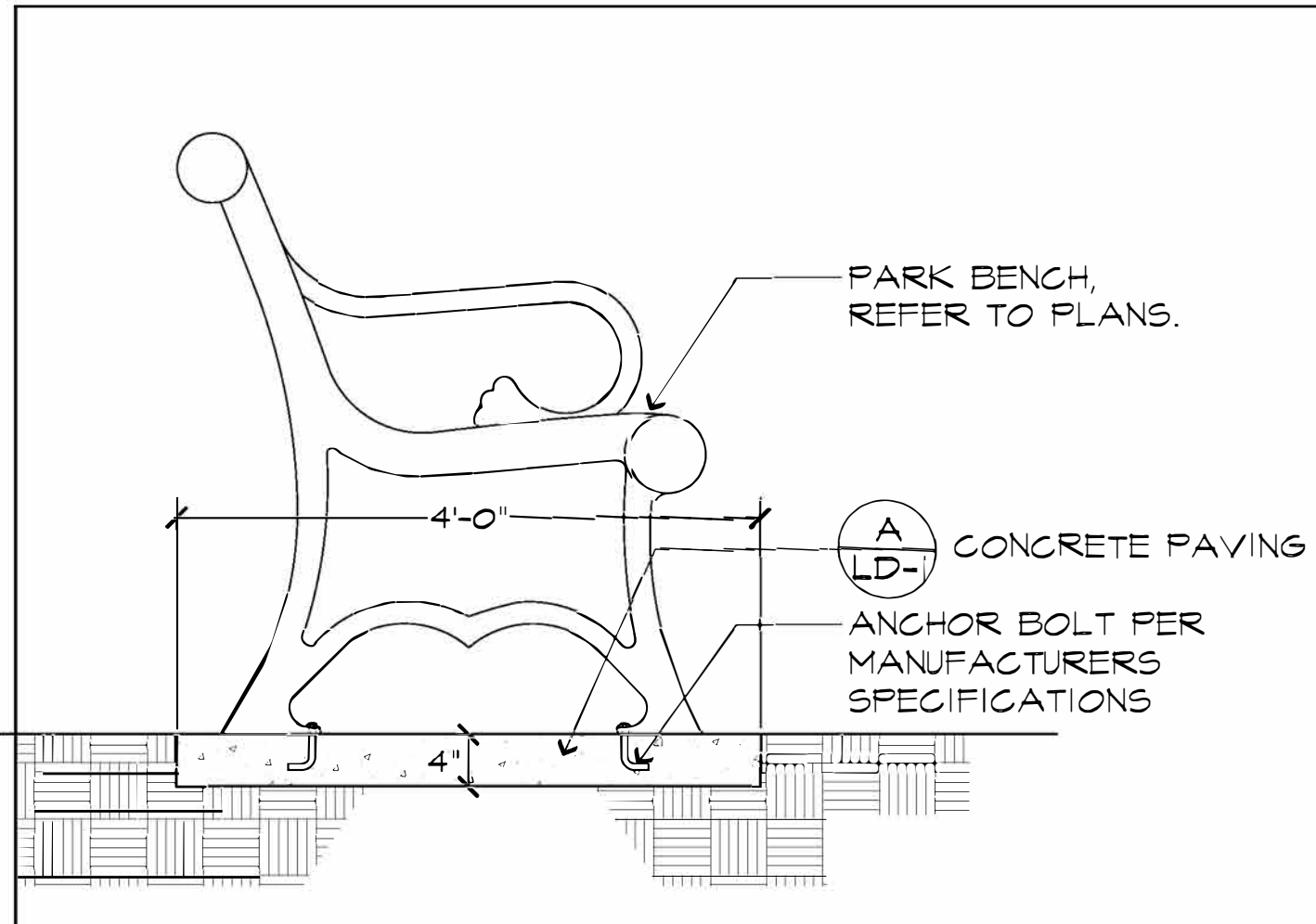
**A 4" CONCRETE PAVING** NO SCALE



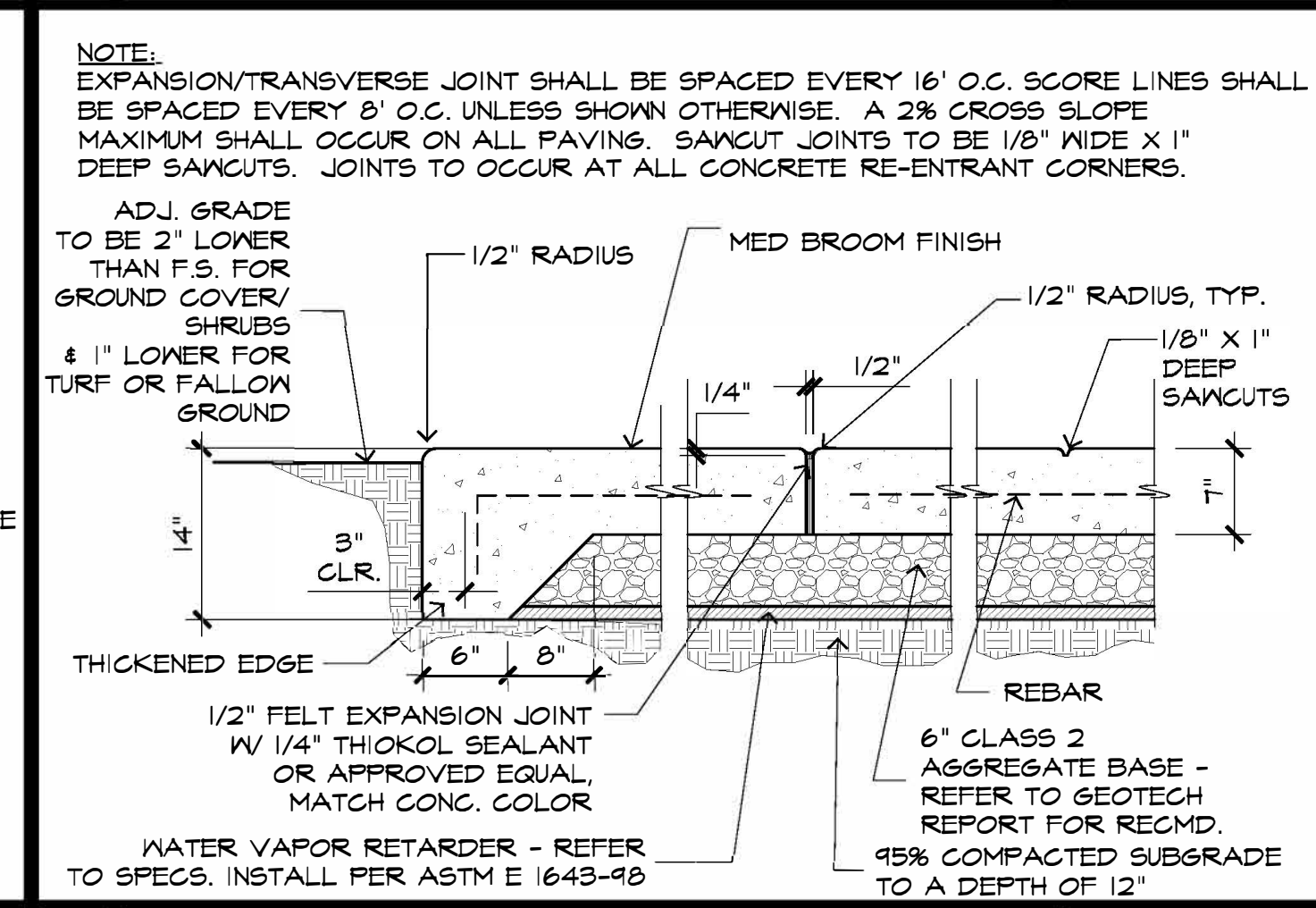
**D SCORE LINE / EXPANSION JOINT LAYOUT** NO SCALE



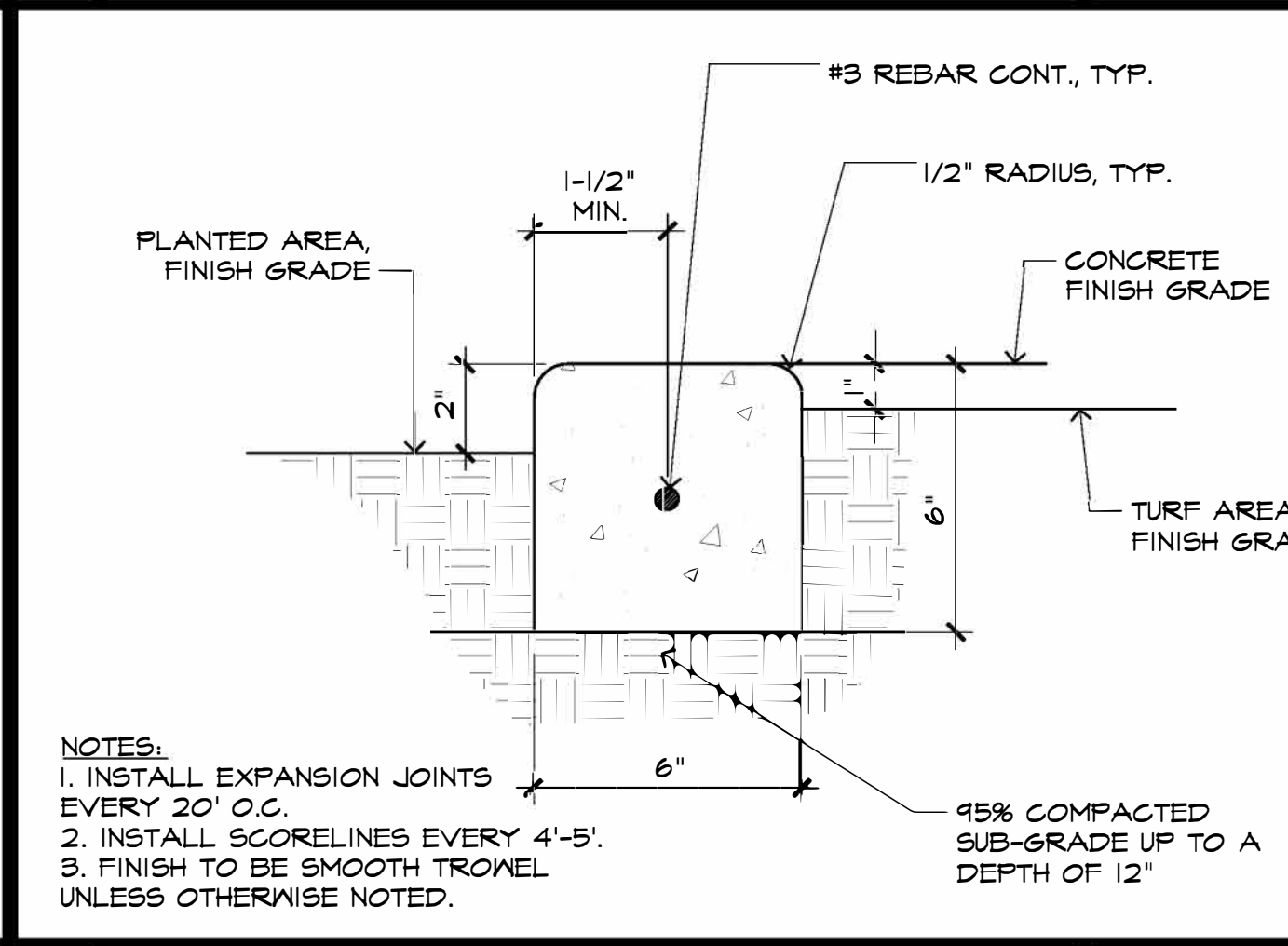
**G TRASH RECEPTACLE PAD** NO SCALE



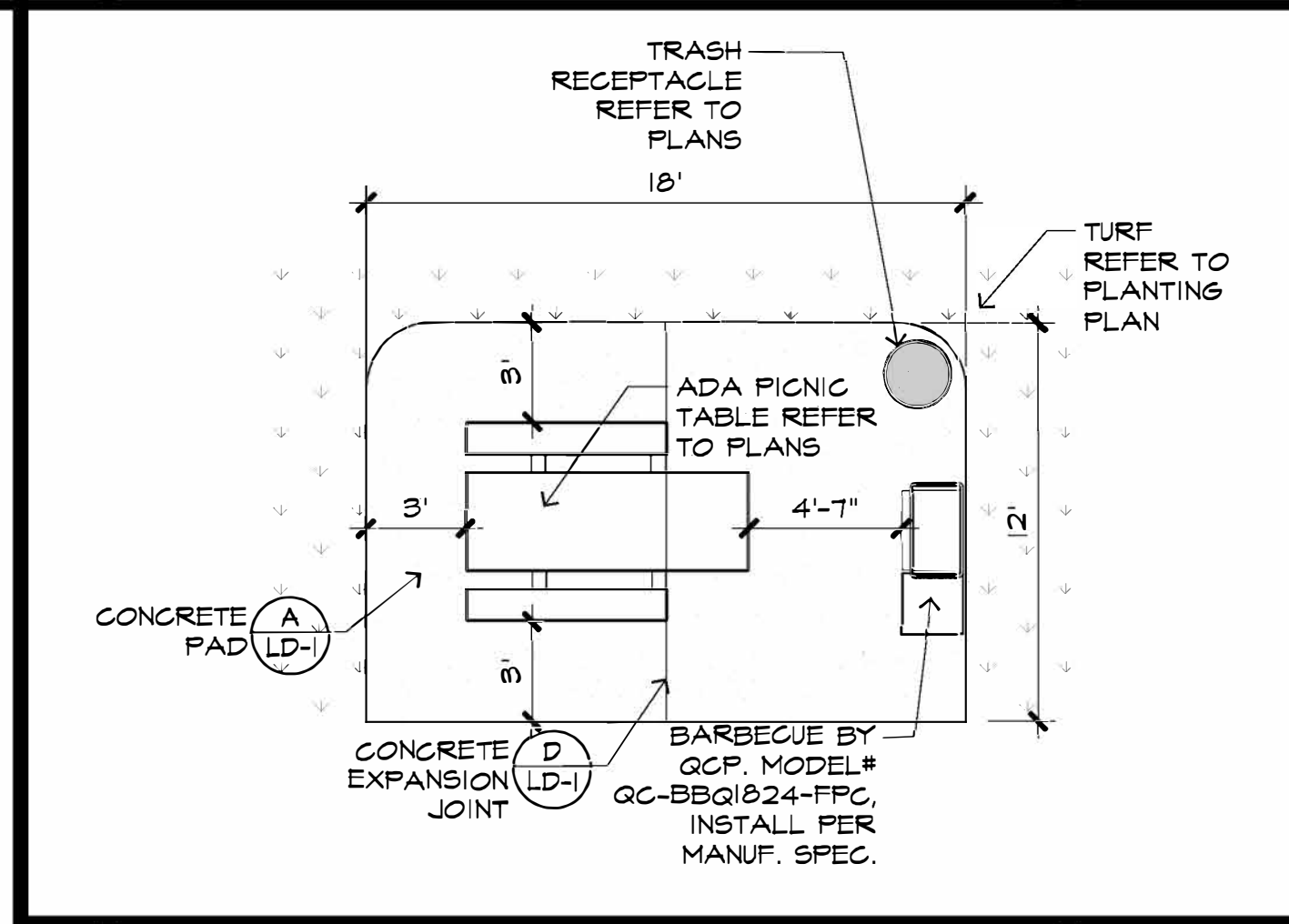
**J PARK BENCH** NO SCALE



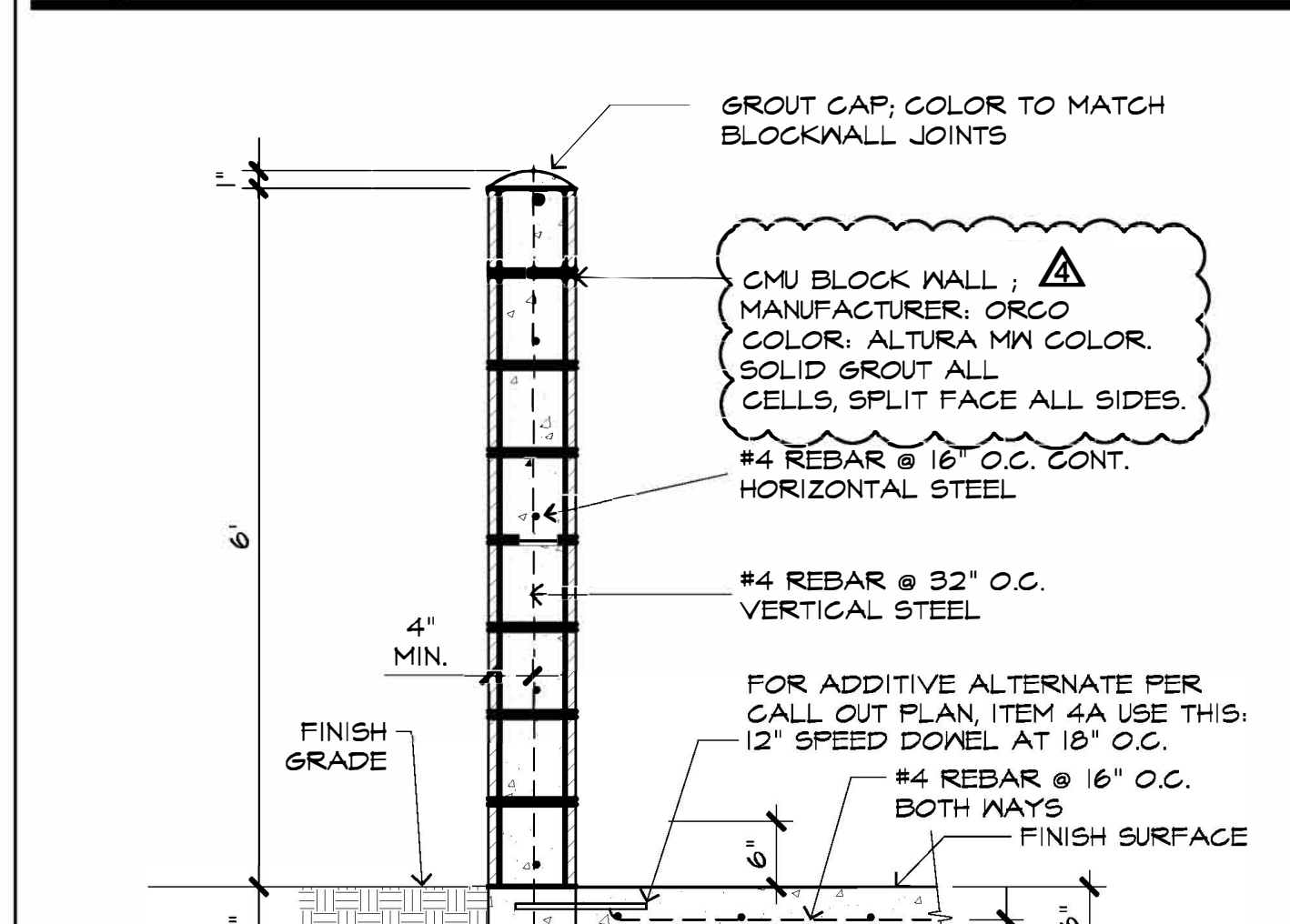
**B 7" CONCRETE PAVING** NO SCALE



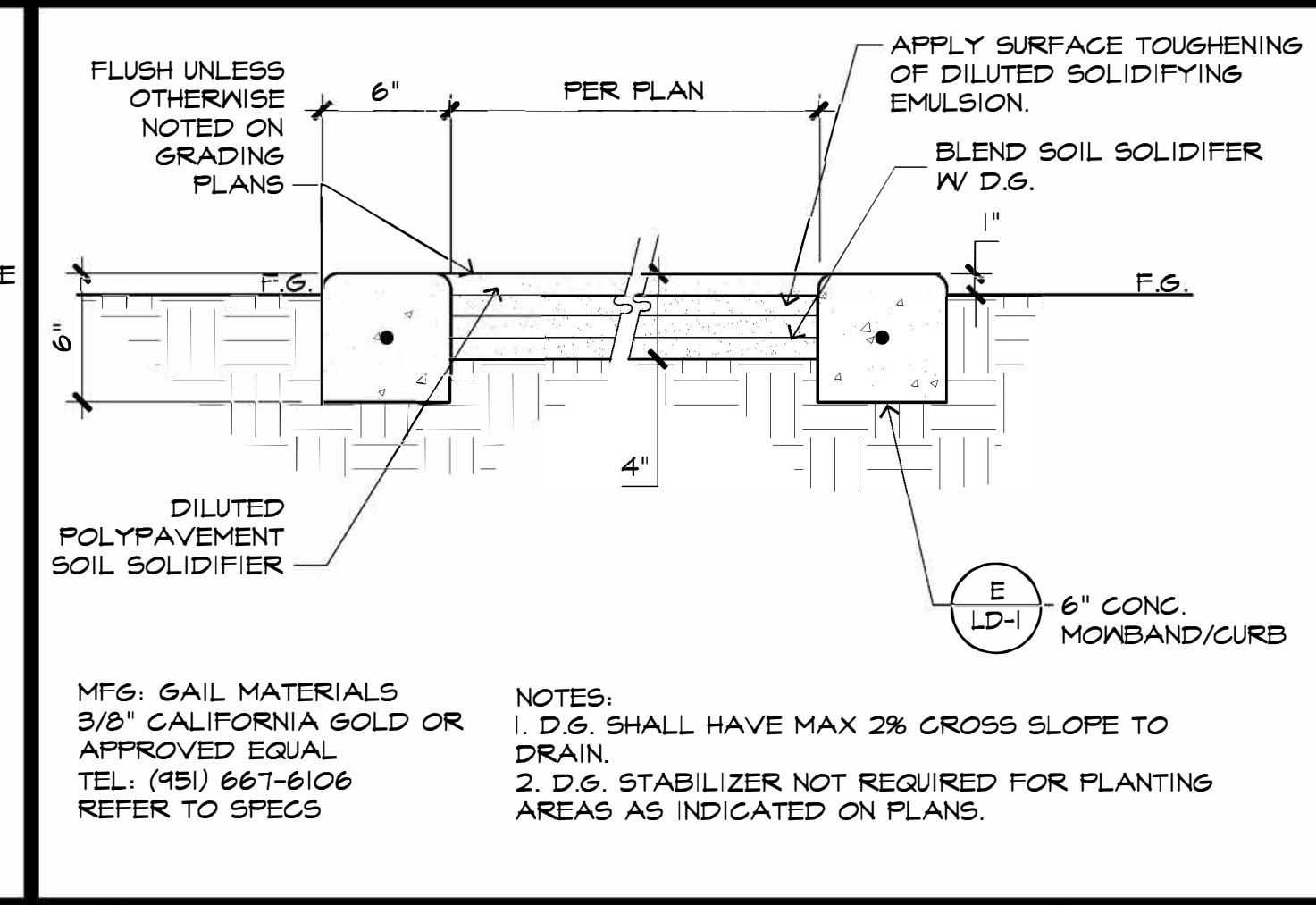
**E 6" CONC. MOWBAND** NO SCALE



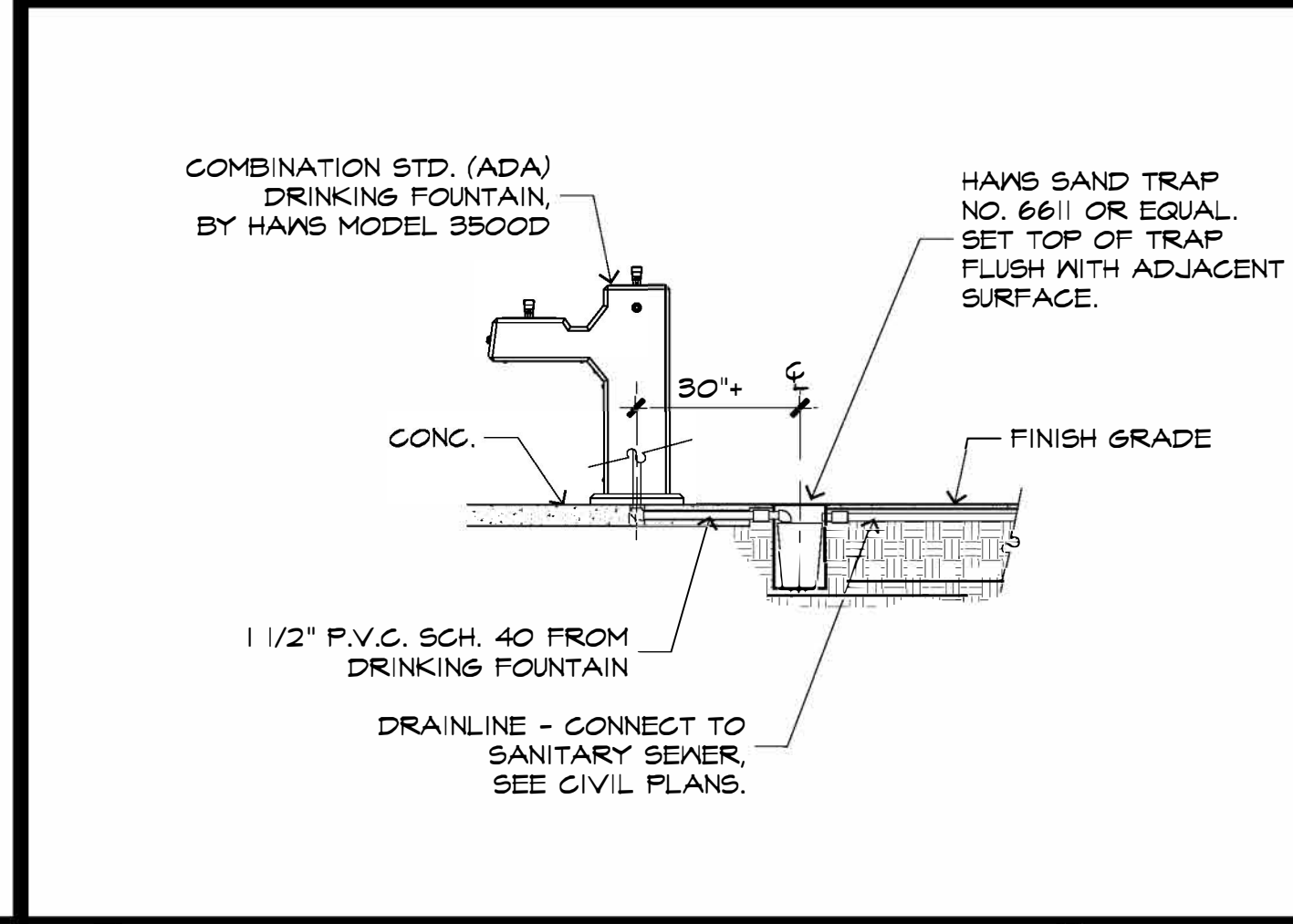
**H PICNIC PAD LAYOUT** NO SCALE



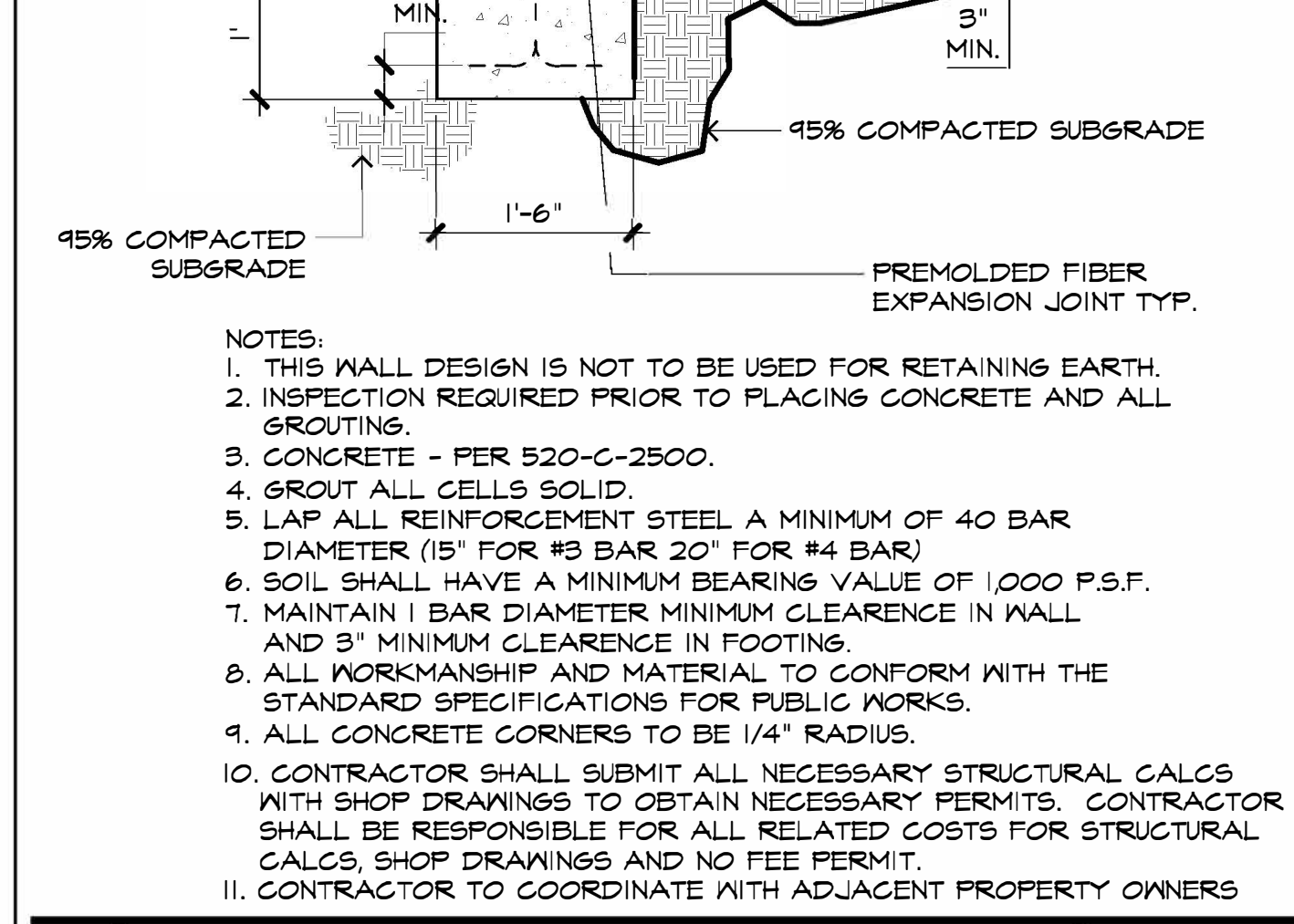
**K 6' HIGH BLOCK WALL - ADD ALT #1** NO SCALE



**F 9" CONC. MOWBAND** NO SCALE



**I DRINKING FOUNTAIN** NO SCALE



**C STABILIZED DECOMPOSED GRANITE** NO SCALE



CONSULTANT:

PROJECT TEAM:

LANDSCAPE ARCHITECT  
**MOORE IACOFANO GOLTSMAN, INC.**  
ELECTRICAL ENGINEER  
**LRA ENGINEERS**  
CIVIL ENGINEER  
**BKF**  
STRUCTURAL ENGINEER  
**ISE**  
SKATEPARK DESIGNER  
**SPOHN RANCH**

**OLIVE BOWL  
KAKU PARK**

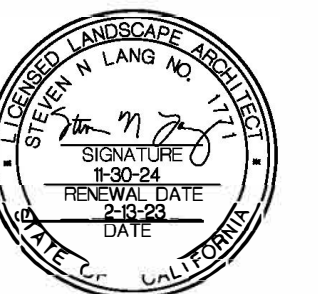
LINDSAY, CA  
93247

SHEET TITLE

**CONSTRUCTION  
DETAILS**

DATE	REVISION
10-18-21	50% CD Submittal
12-8-21	90% CD Submittal
12-14-22	90% CD Submittal
2-13-23	100% CD Submittal
4-7-23	ADDENDUM 5

STAMP

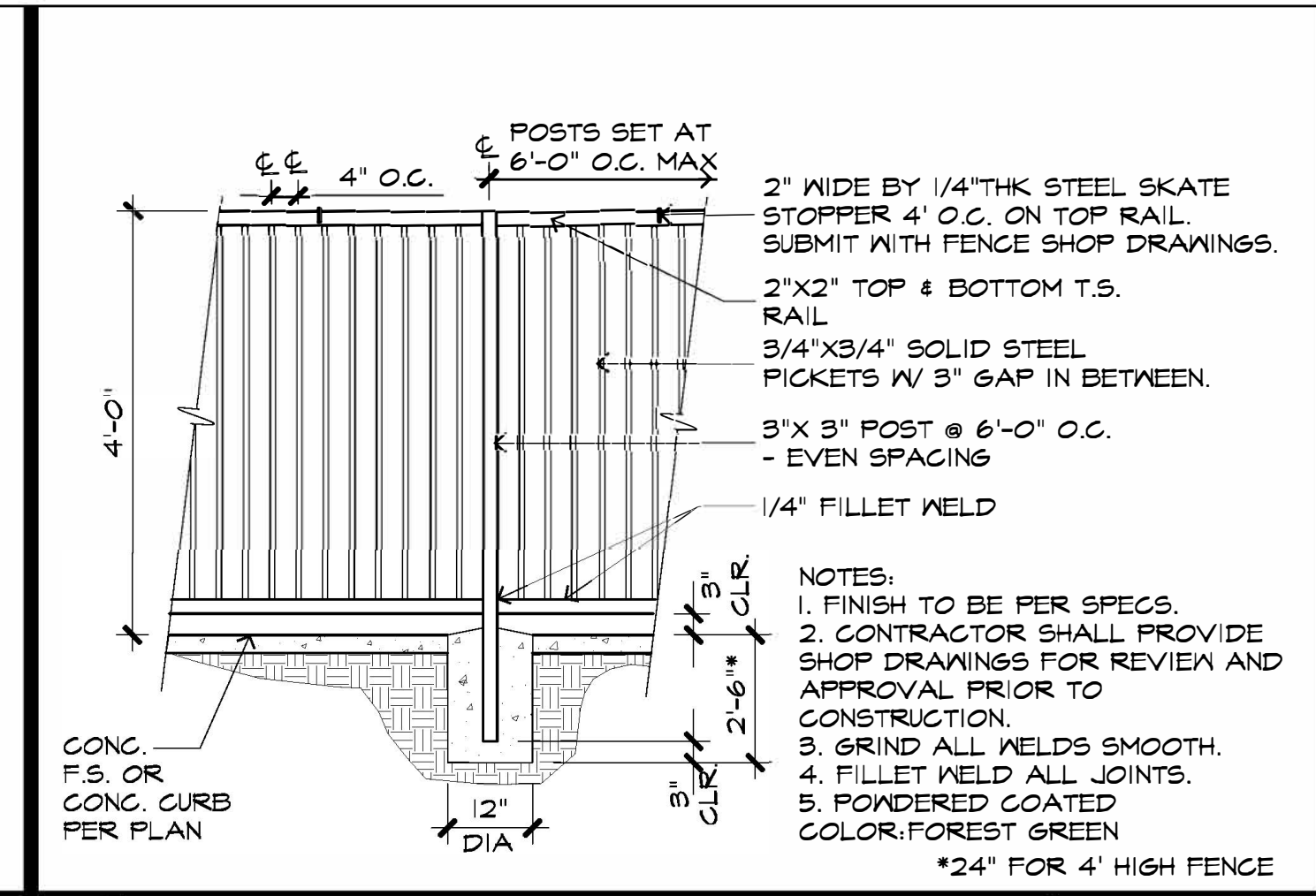


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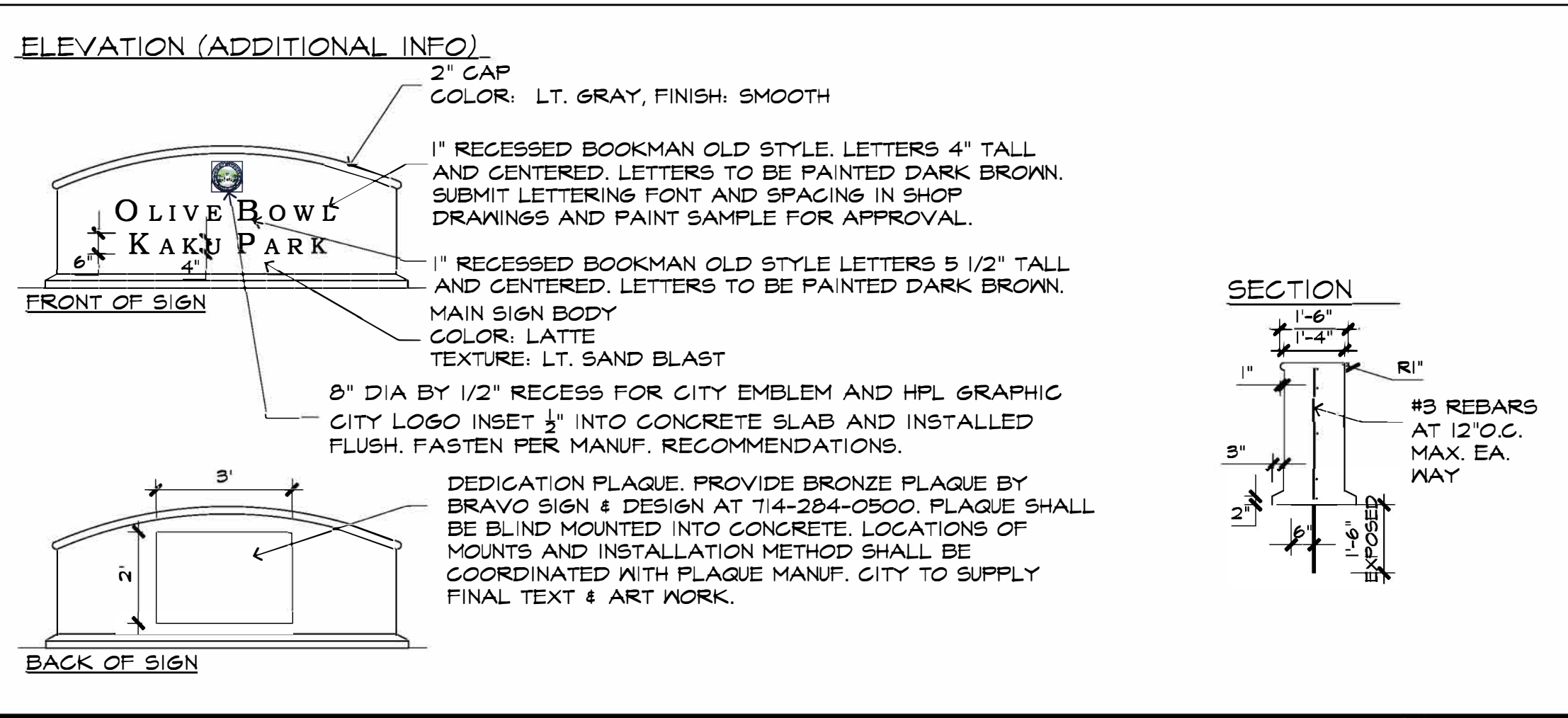
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**LD-2**

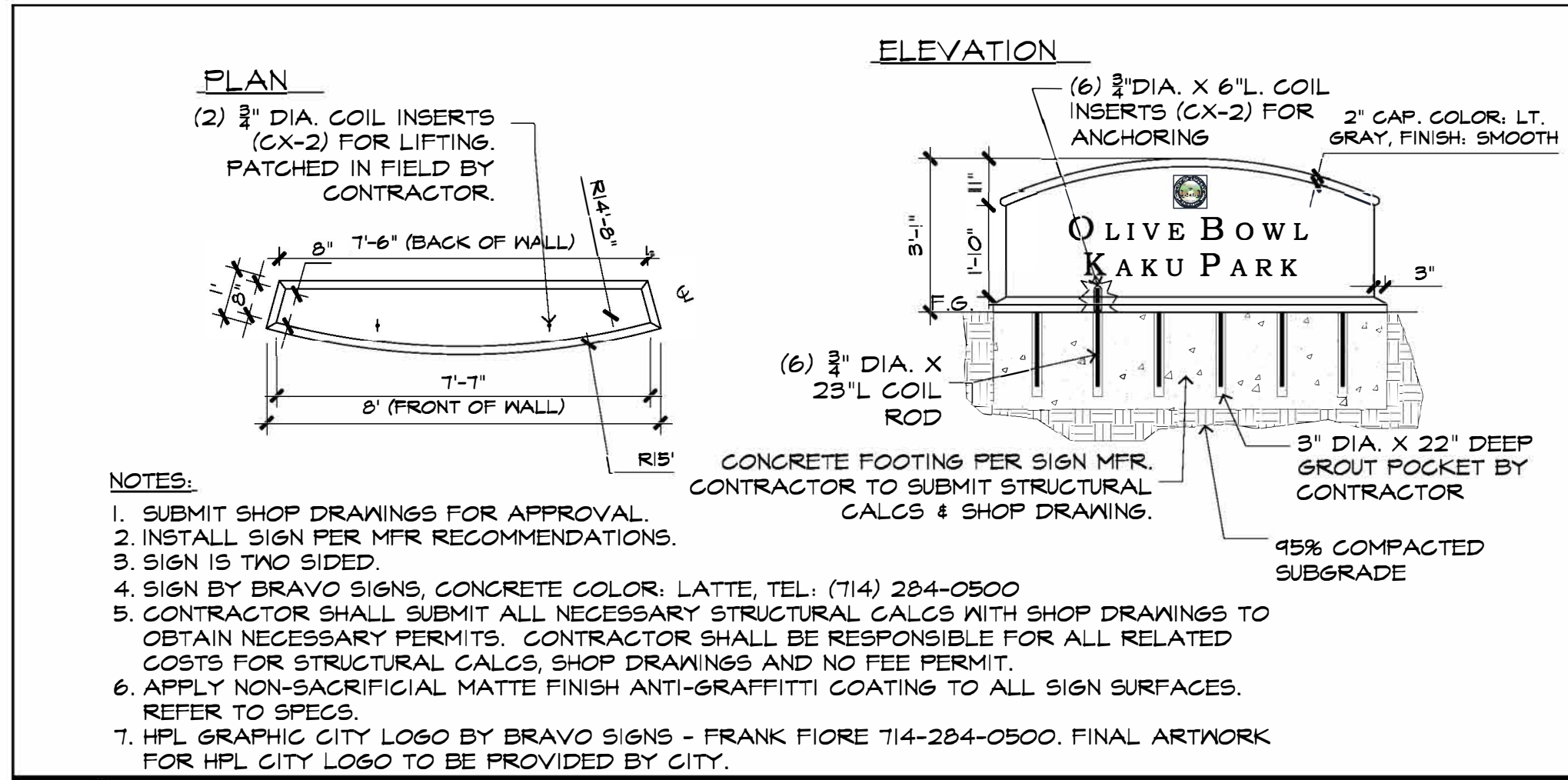
SHEET 43 OF 85 SHEETS



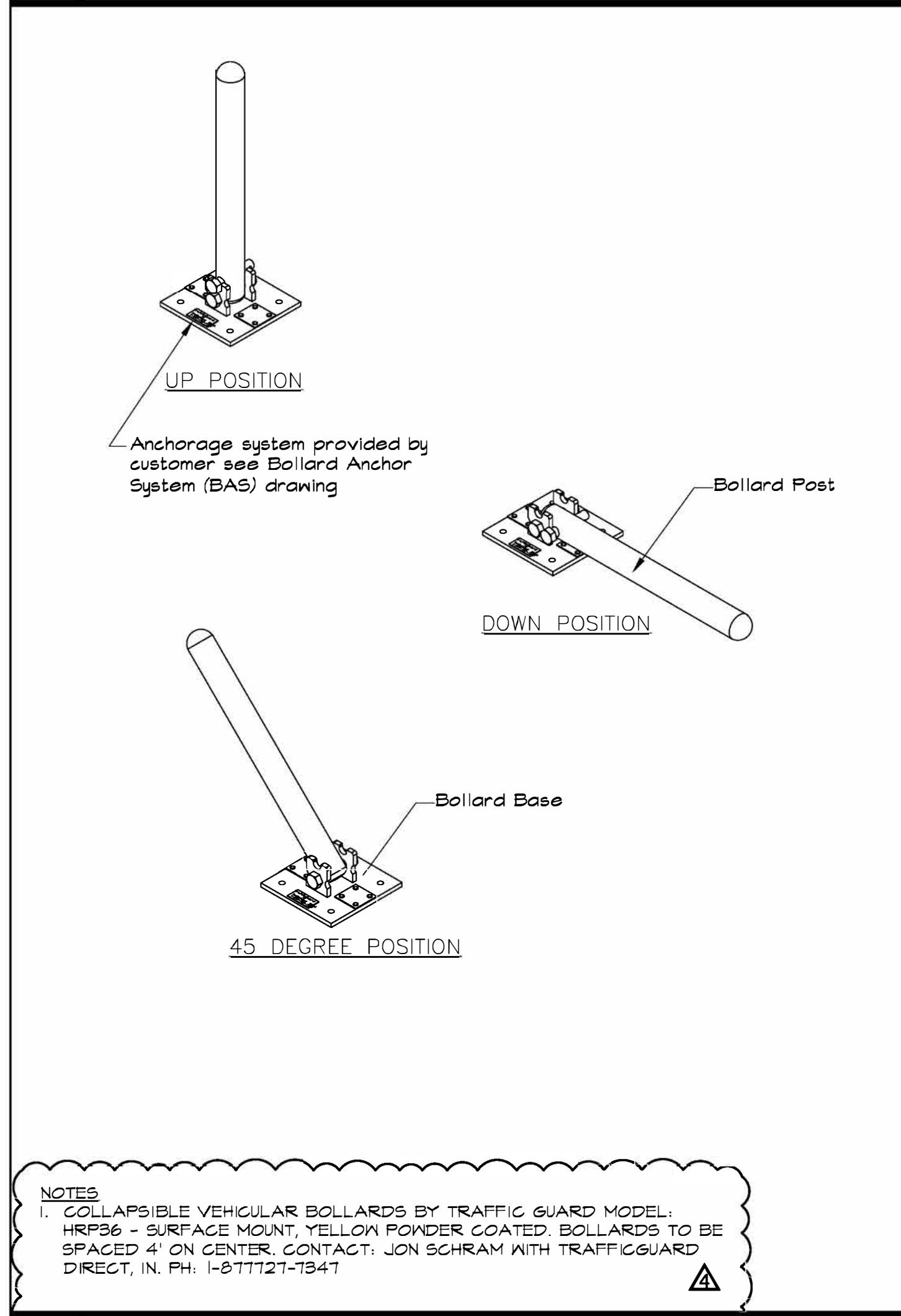
**4' HIGH TUBE STEEL FENCE** NO SCALE



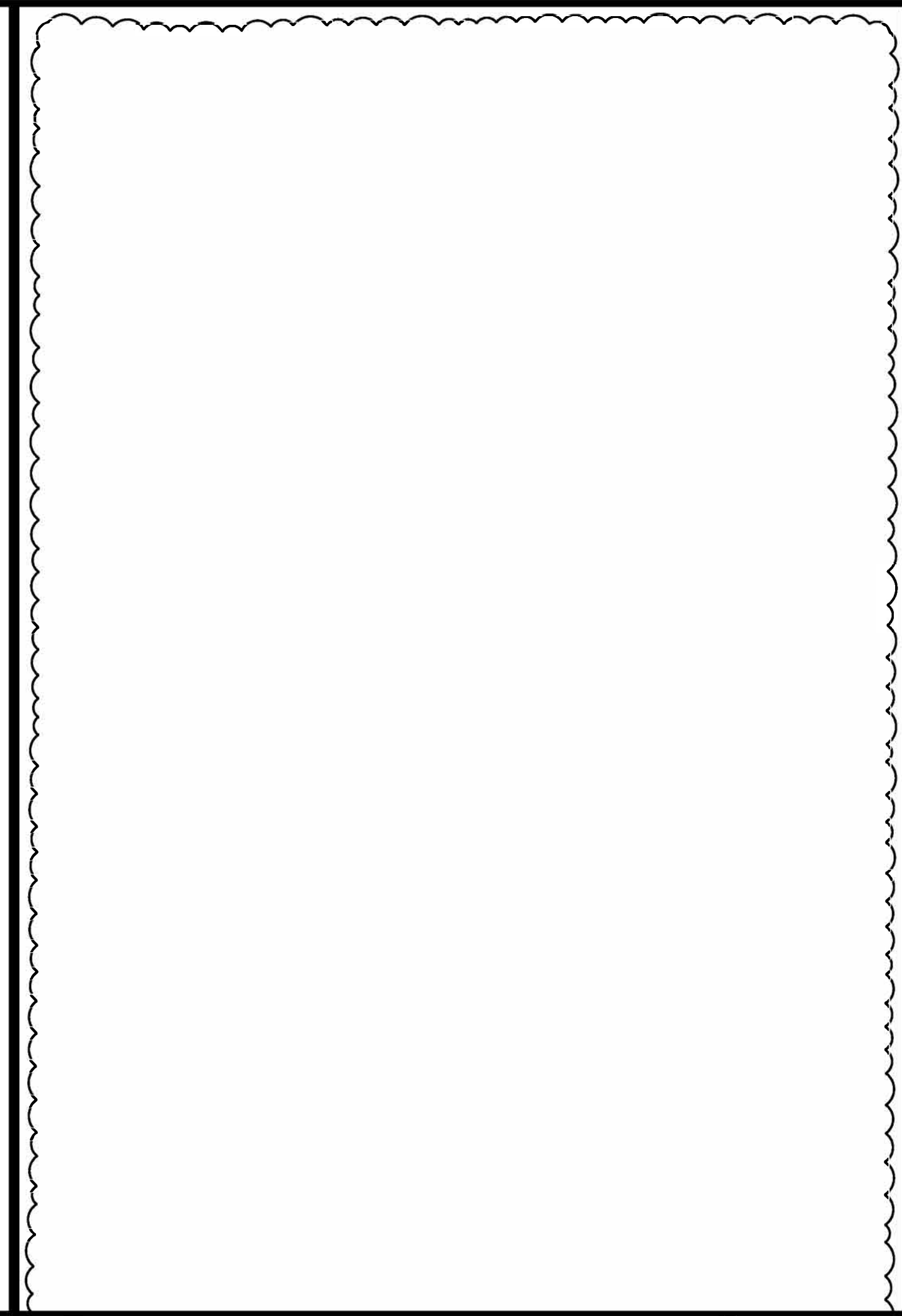
**ENTRY MONUMENT SIGN** NO SCALE



**F COLLAPSIBLE BOLLARD** NO SCALE



**F COLLAPSIBLE BOLLARD** NO SCALE



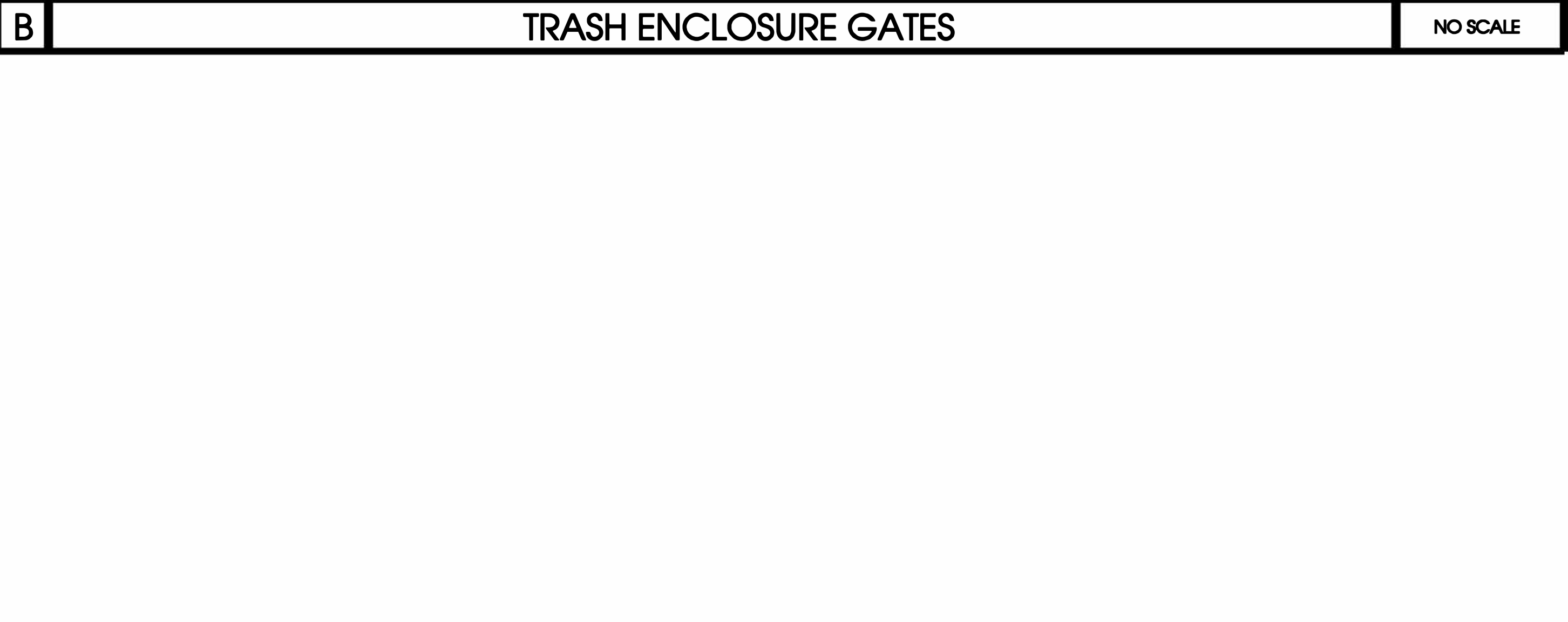
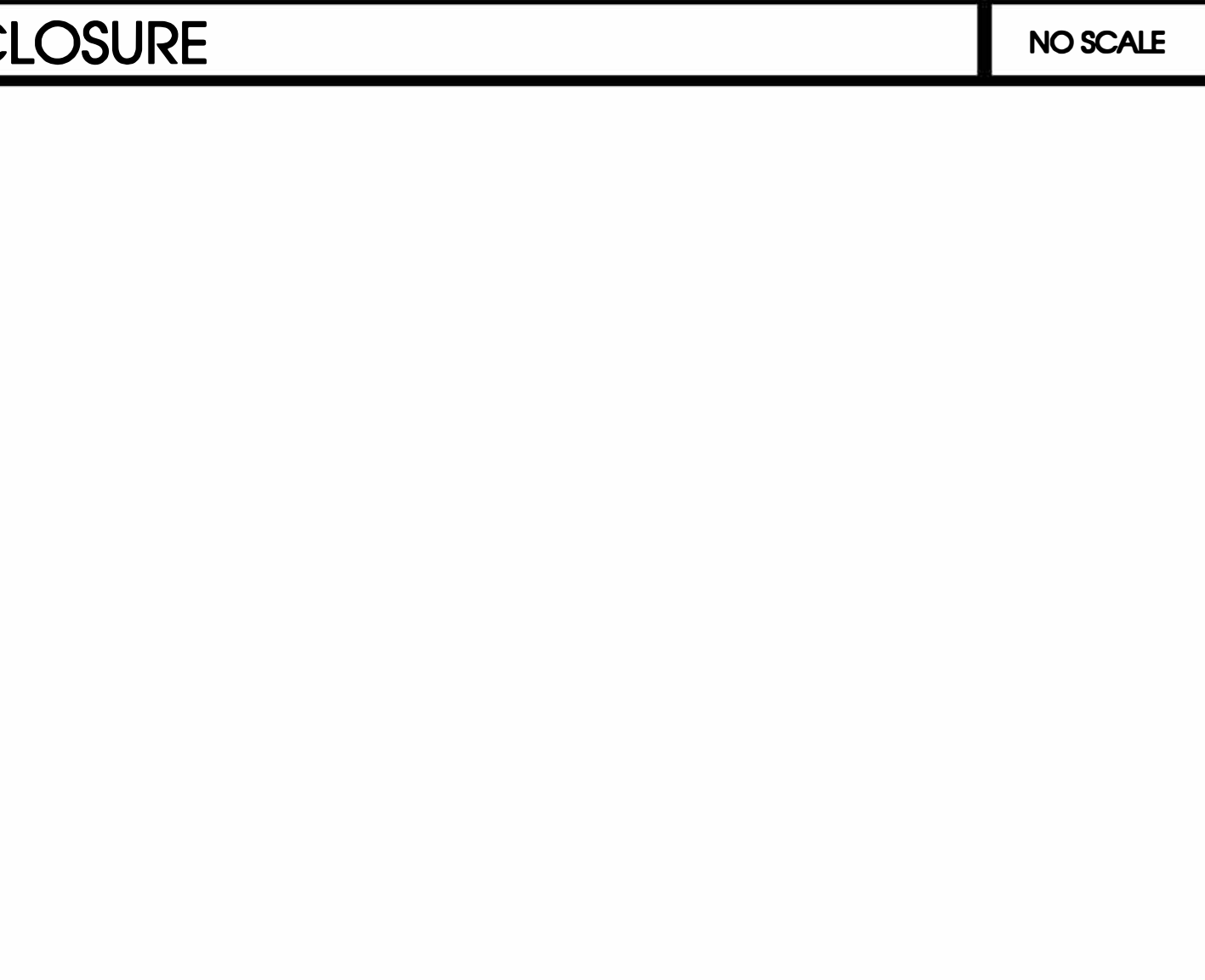
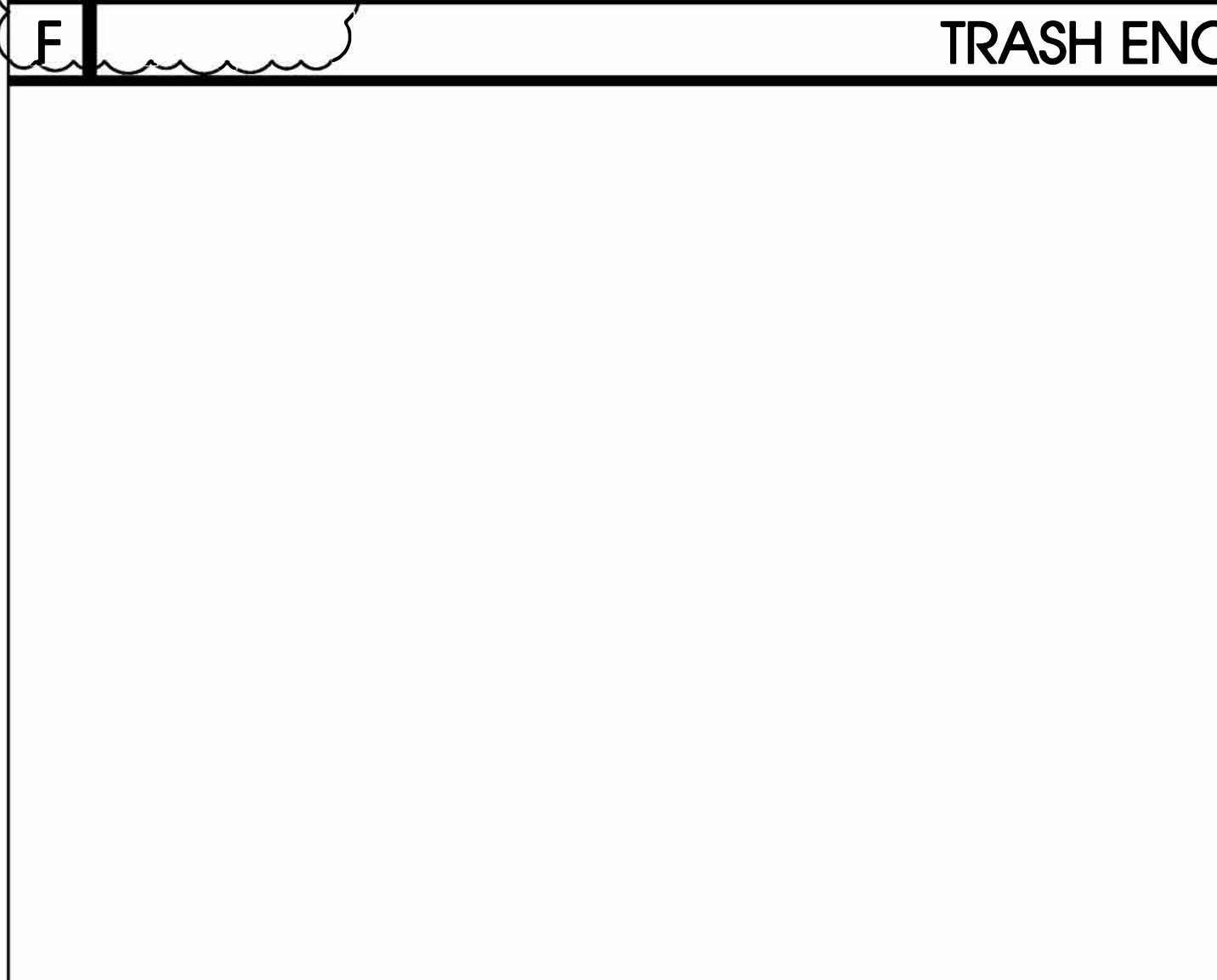
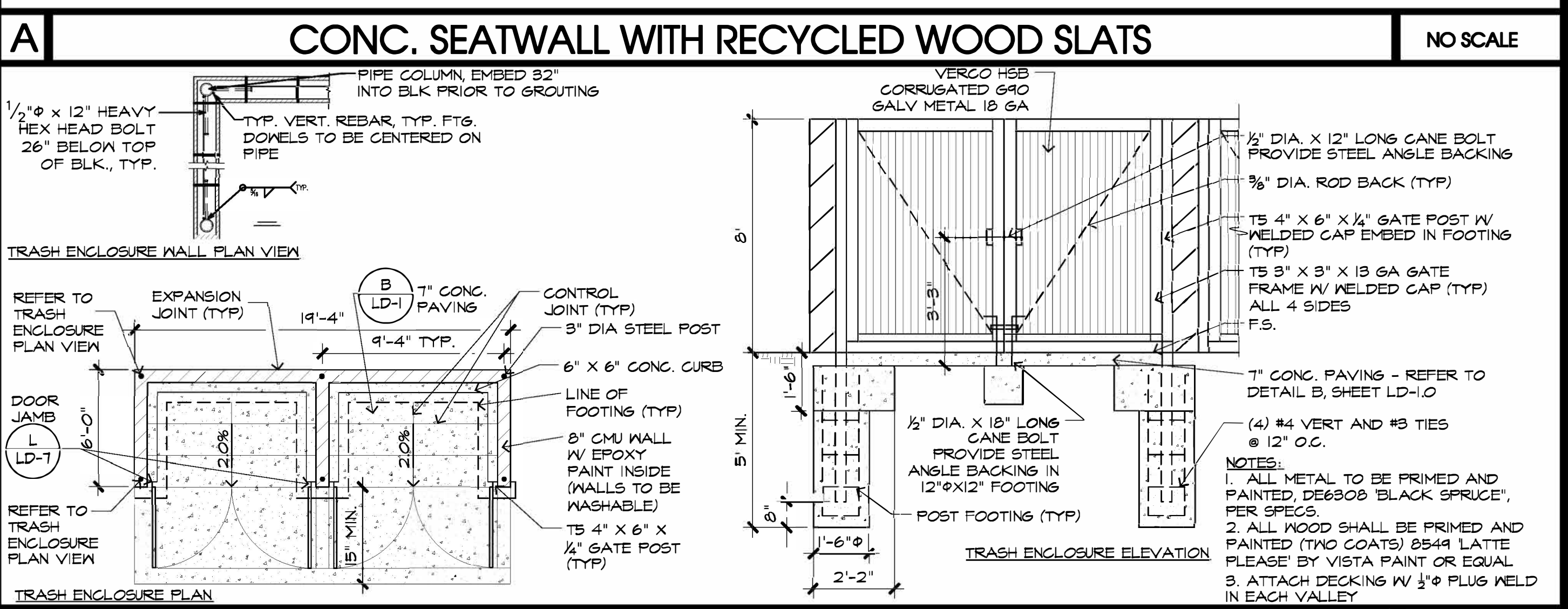
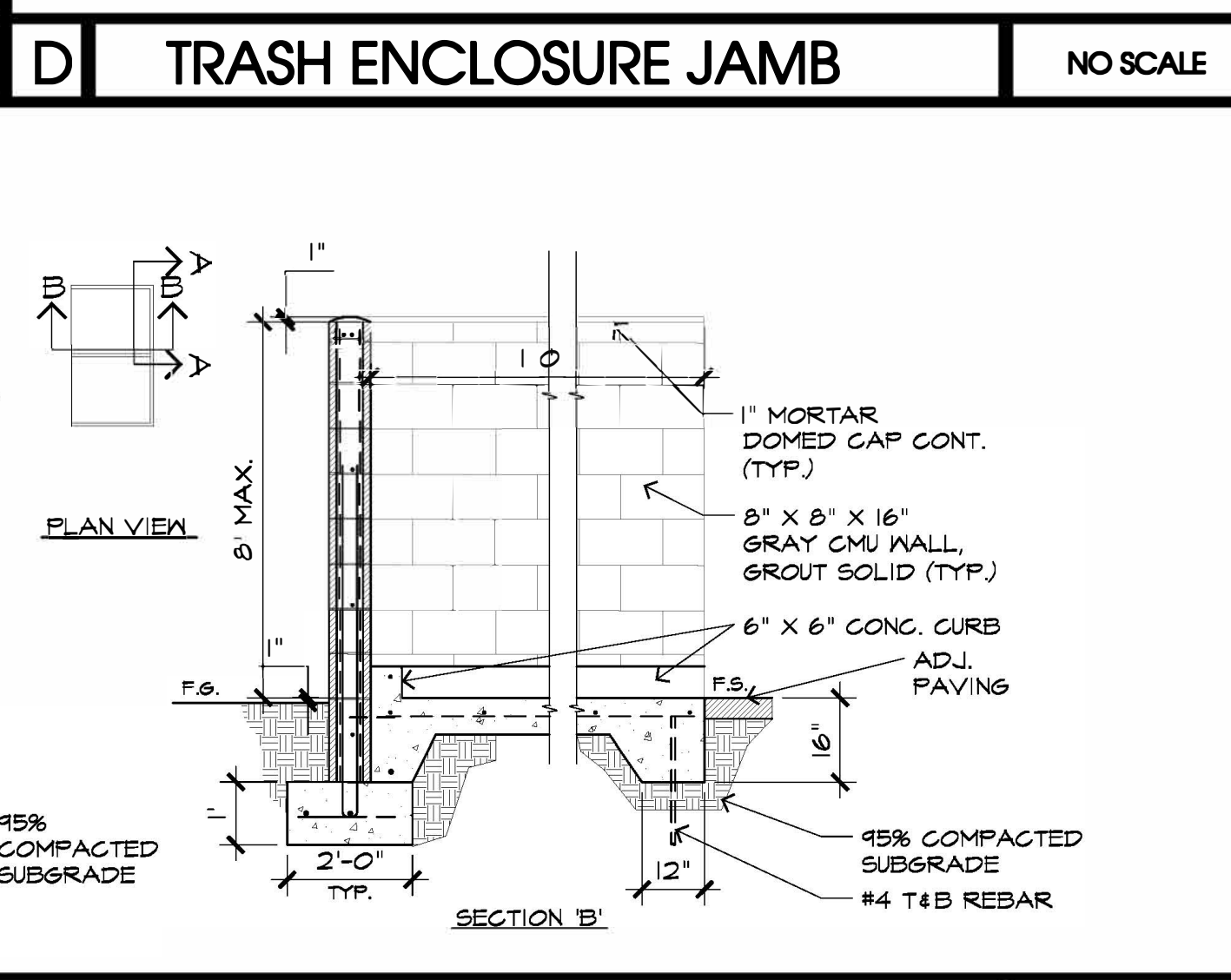
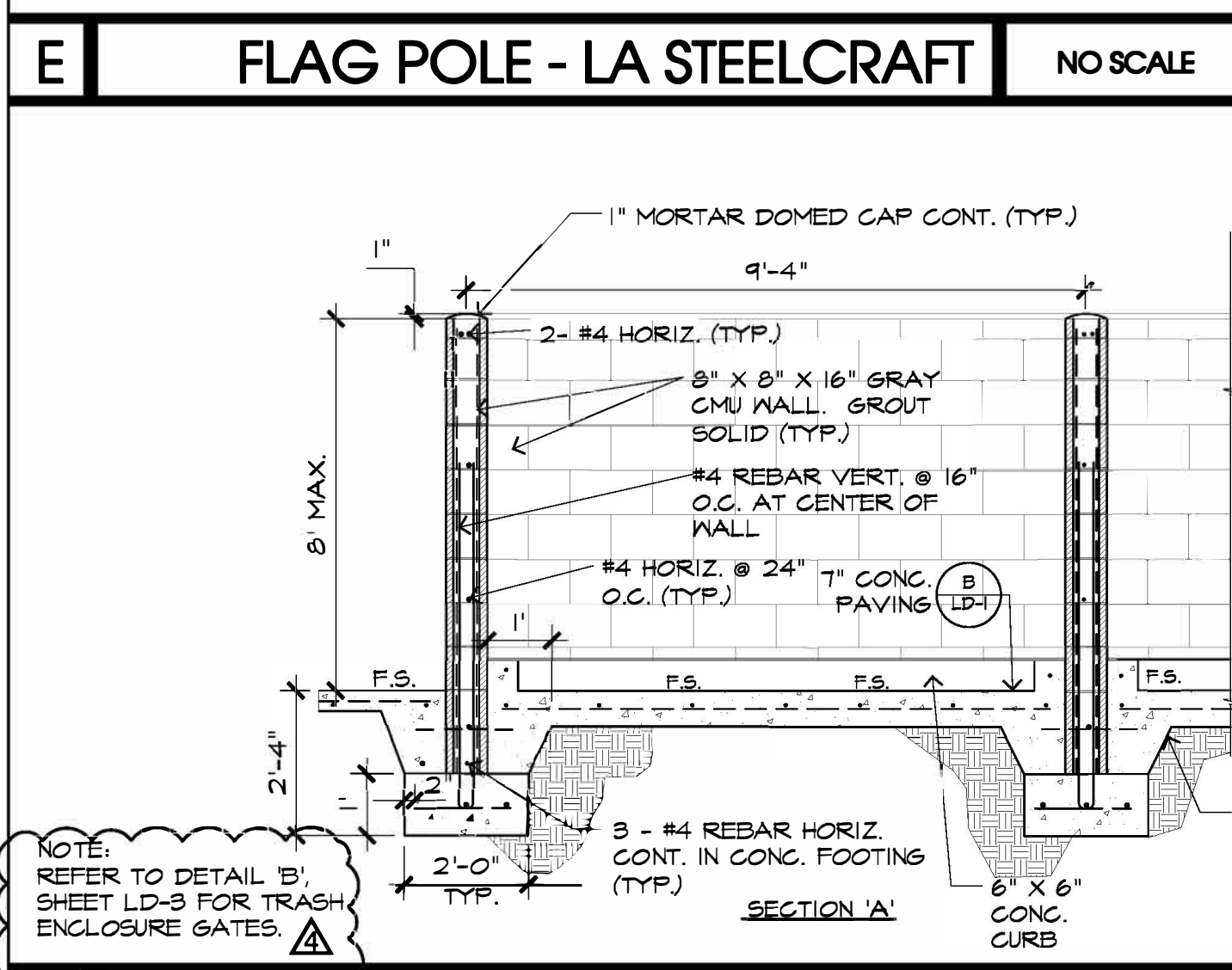
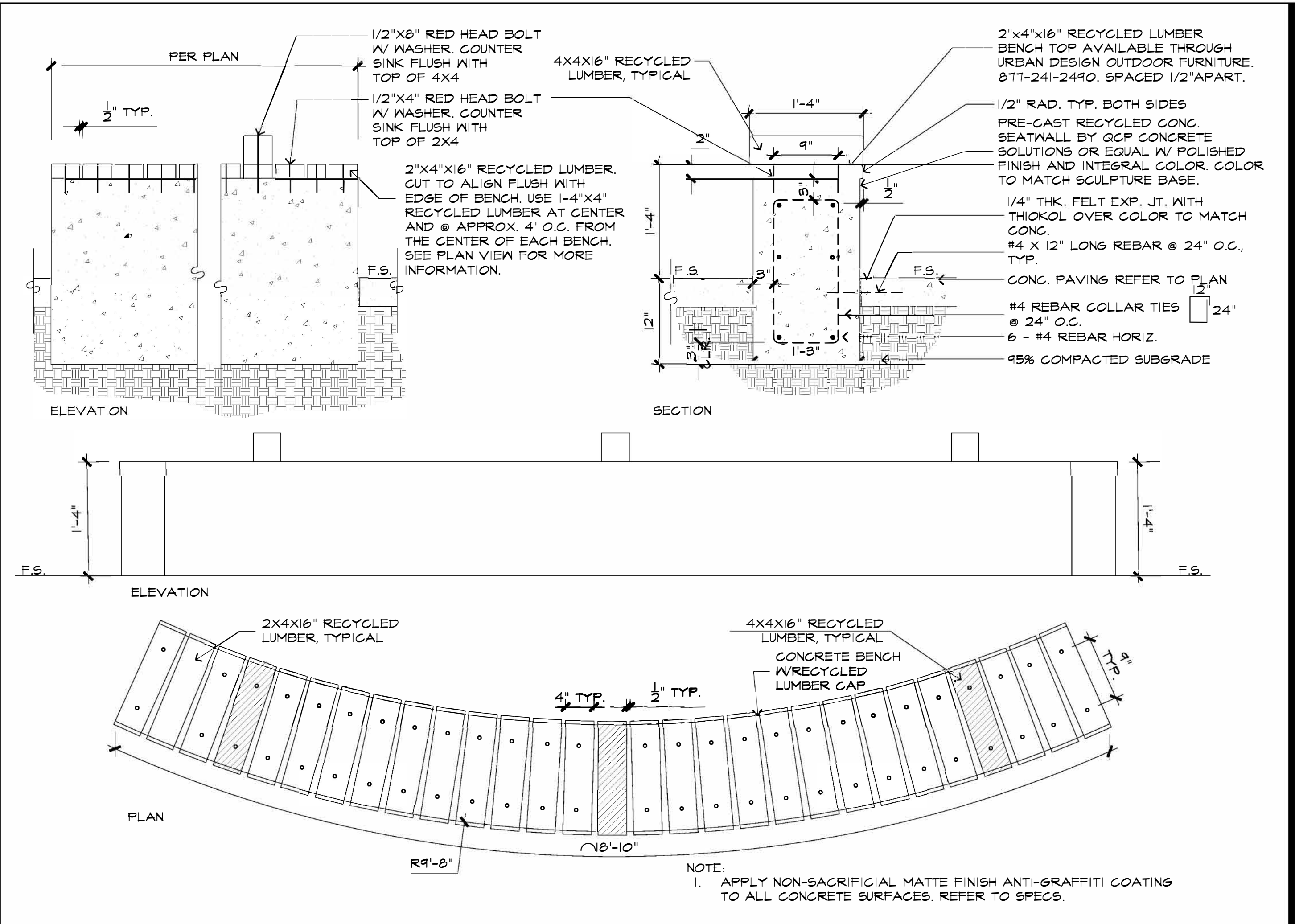
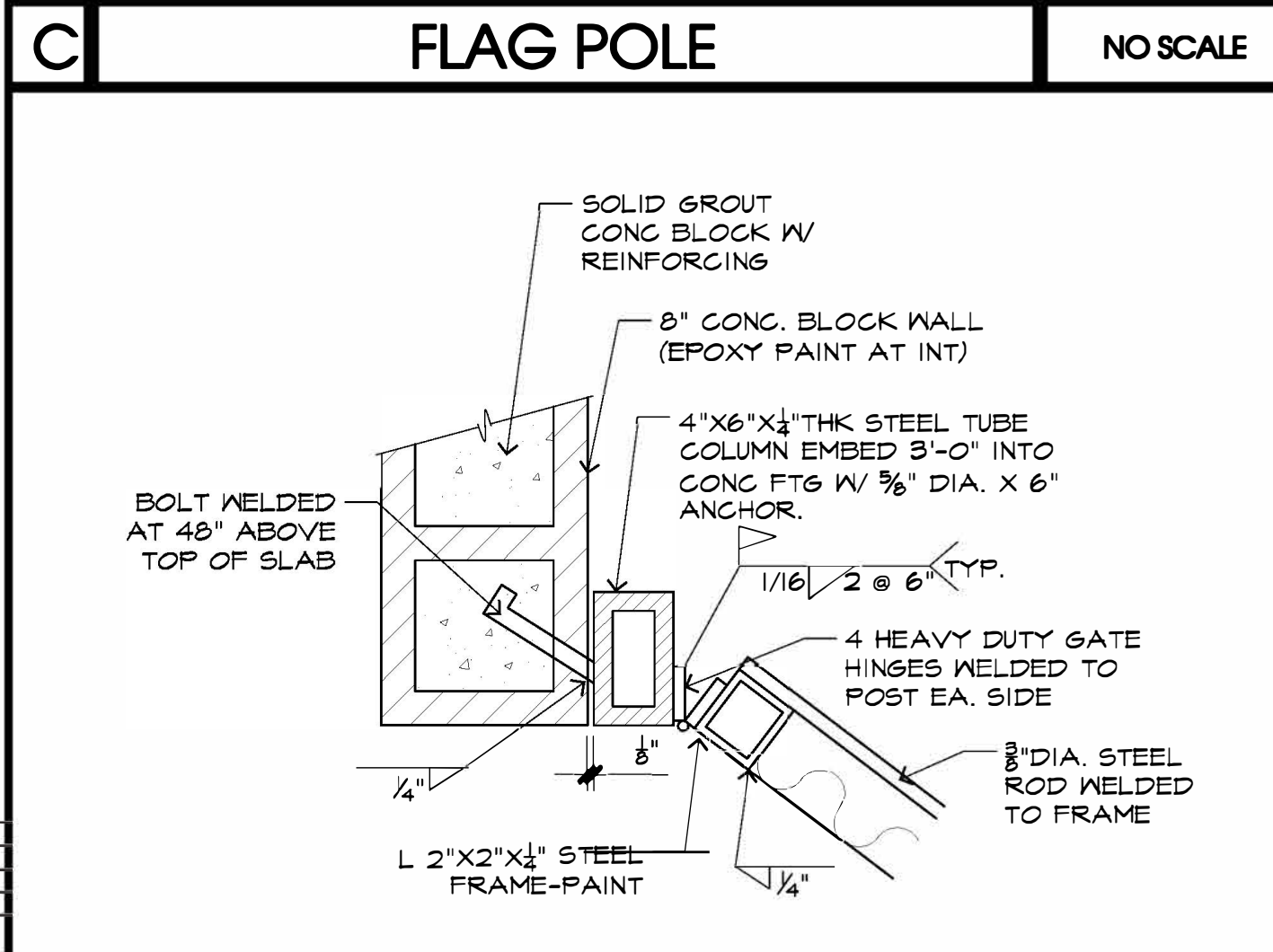
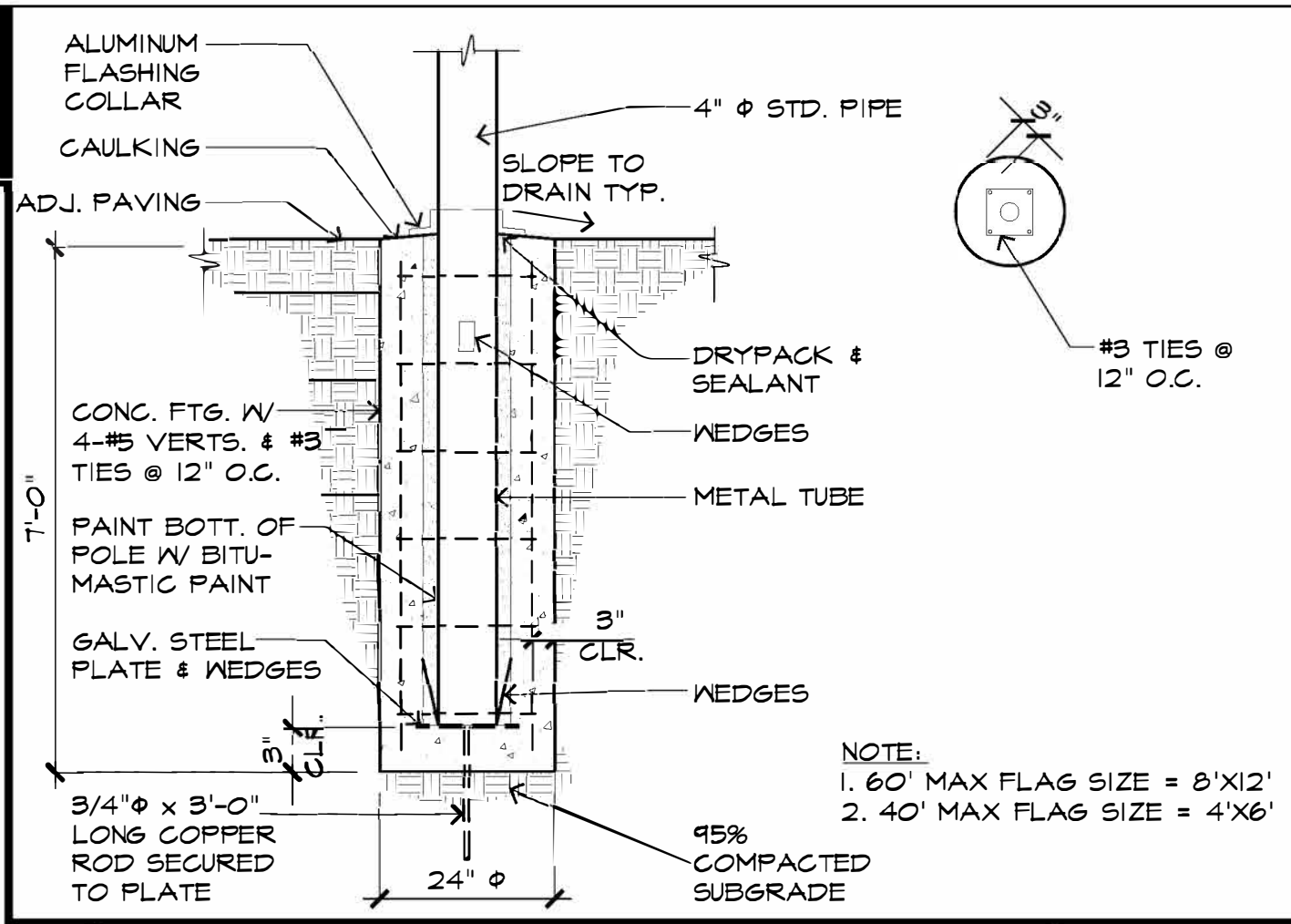
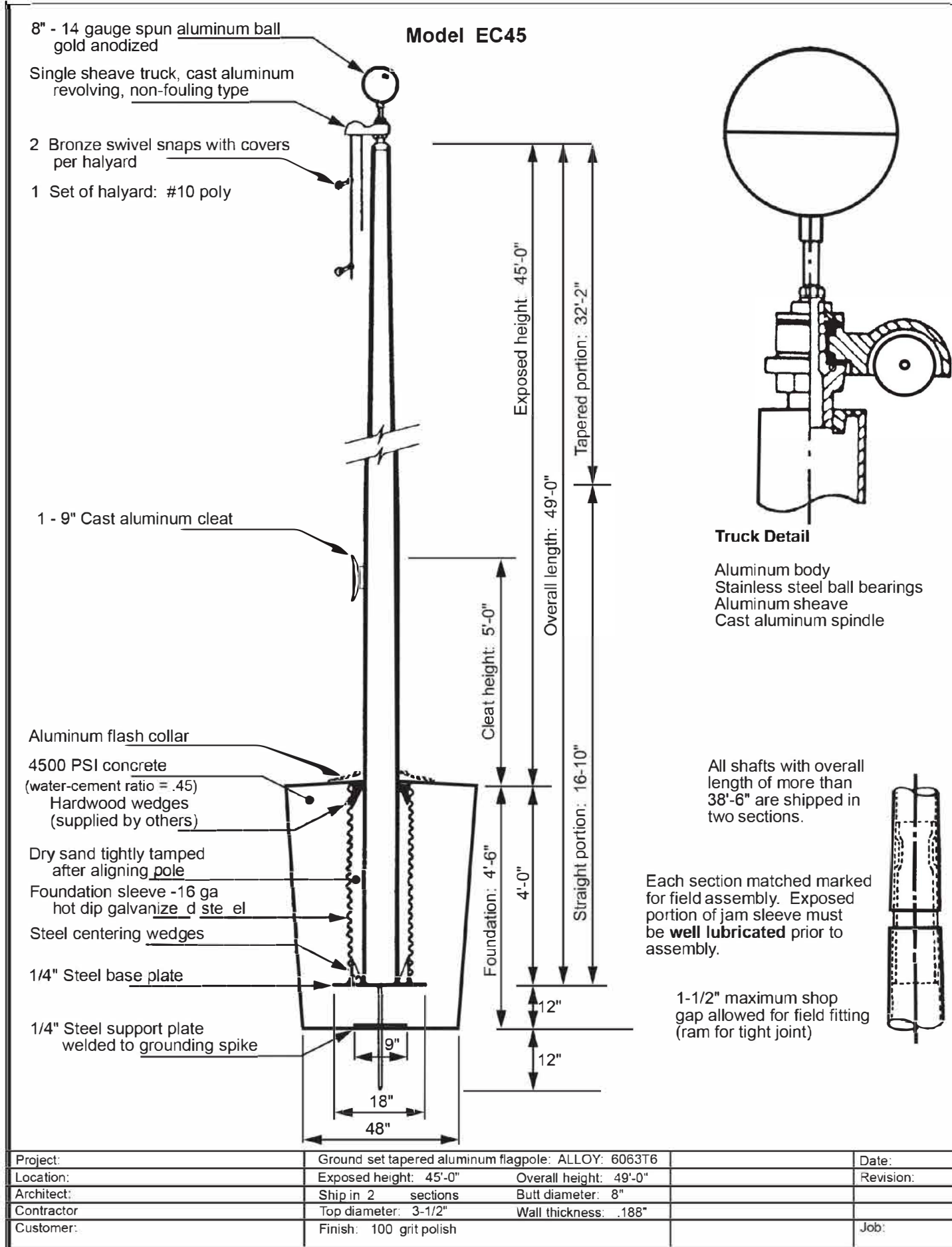
**B BBQ WITH PREP TABLE** NO SCALE


**D NOT USED** NO SCALE

**F COLLAPSIBLE BOLLARD** NO SCALE



NOTES:  
1. CONTRACTOR TO PROVIDE STRUCTURAL CALCULATIONS FOR FOOTING. FOOTING SHOWN FOR BIDDING PURPOSES ONLY.





100 W. UNION AVE.  
FULLERTON, CA 92832  
TEL: 714.871.9638  
www.migcom.com

CONSULTANT:

PROJECT TEAM:  
LANDSCAPE ARCHITECT  
**MOORE IACOFANO GOLTSMAN, INC.**  
ELECTRICAL ENGINEER  
**LRA ENGINEERS**  
CIVIL ENGINEER  
**BKF**  
STRUCTURAL ENGINEER  
**ISE**  
SKATEPARK DESIGNER  
**SPOHN RANCH**


**OLIVE BOWL  
KAKU  
PARK**

LINDSAY, CA  
93247

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**CONSTRUCTION  
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4-7-23	ADDENDUM #5

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SHEET  
**LD-3**  
SHEET 44 OF 85 SHEETS



CONSULTANT:

PROJECT TEAM:  
 LANDSCAPE ARCHITECT  
**MOORE JACOFANO GOLTSMAN, INC.**  
 ELECTRICAL ENGINEER  
**LRA ENGINEERS**  
 CIVIL ENGINEER  
**BKF**  
 STRUCTURAL ENGINEER  
**ISE**  
 SKATEPARK DESIGNER  
**SPOHN RANCH**

**OLIVE BOWL  
KAKU  
PARK**

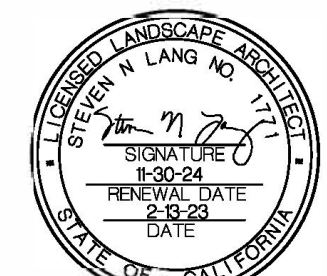
LINDSAY, CA  
93247

SHEET TITLE

**CONSTRUCTION  
DETAILS**

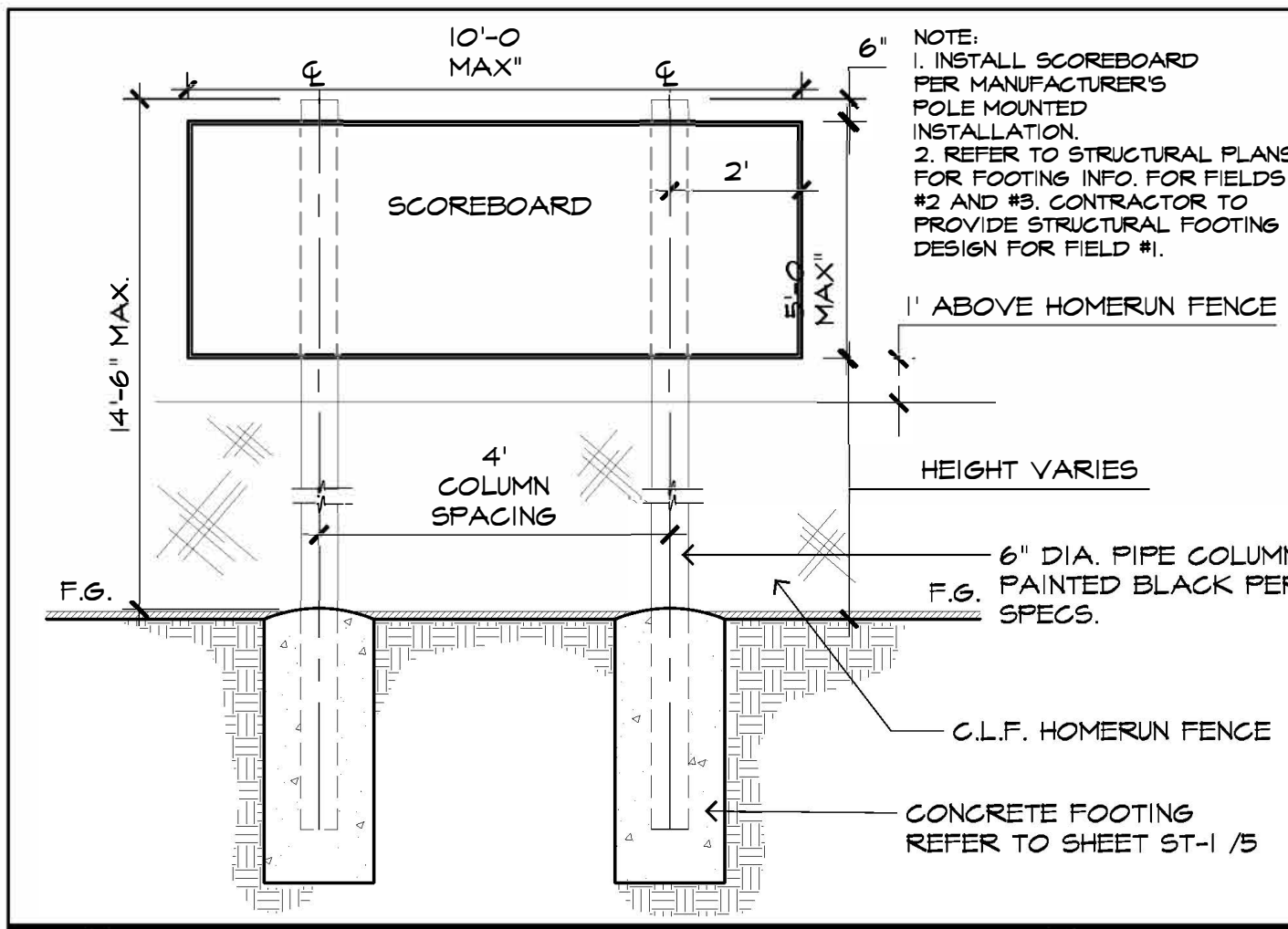
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4-7-23	ADDENDUM #5

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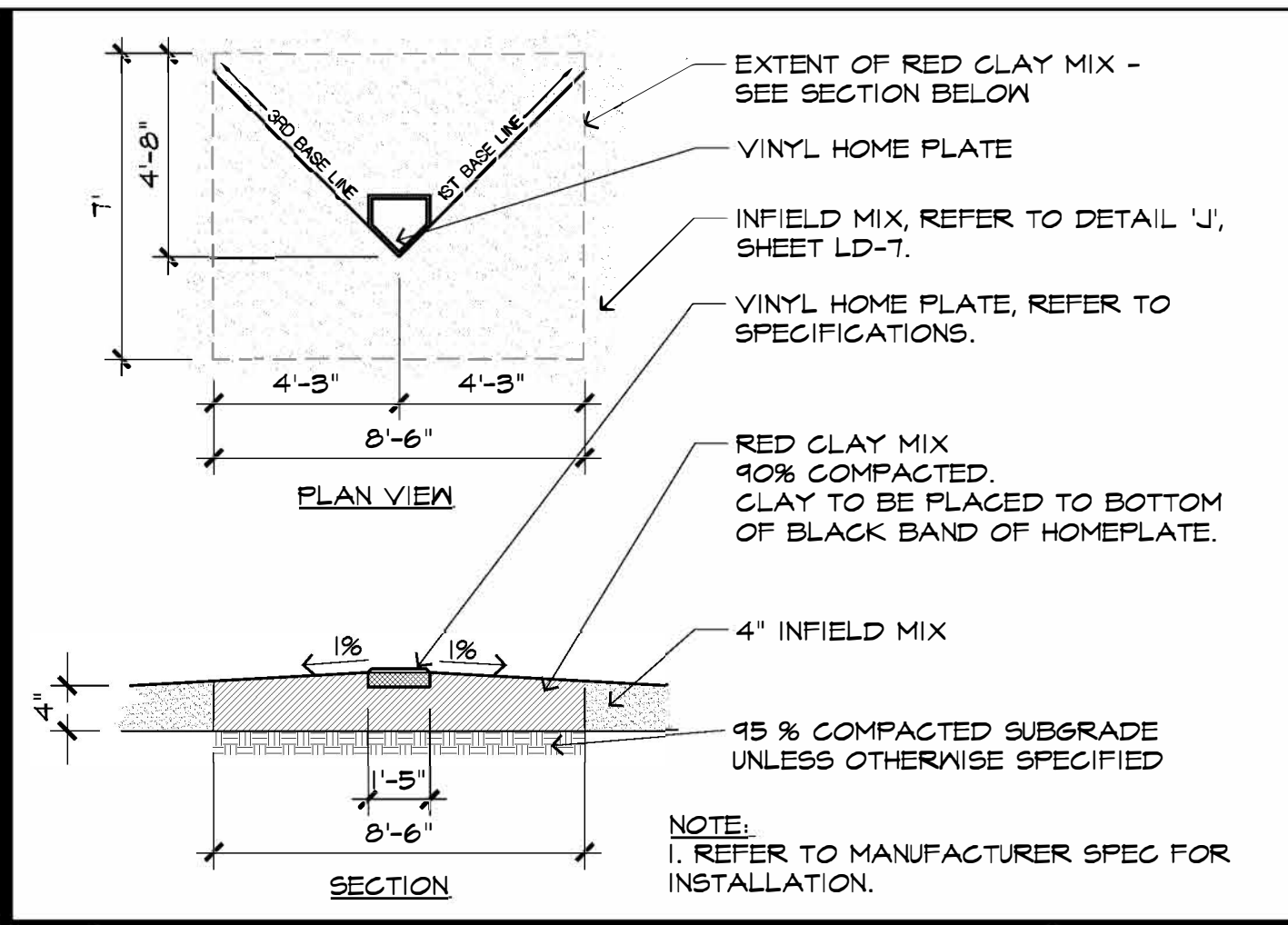


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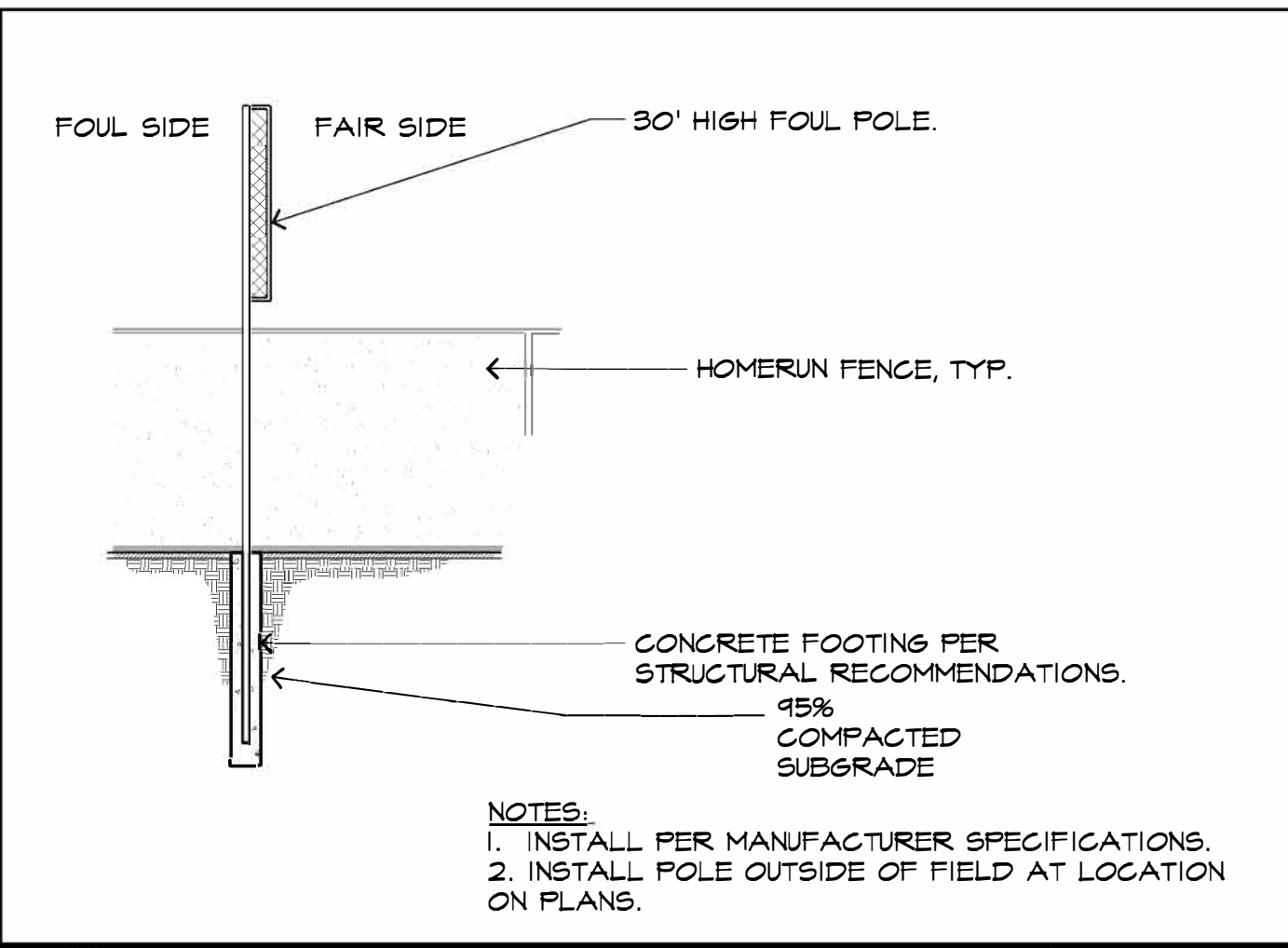
SHEET  
**LD-6**  
SHEET 47 OF 85 SHEETS



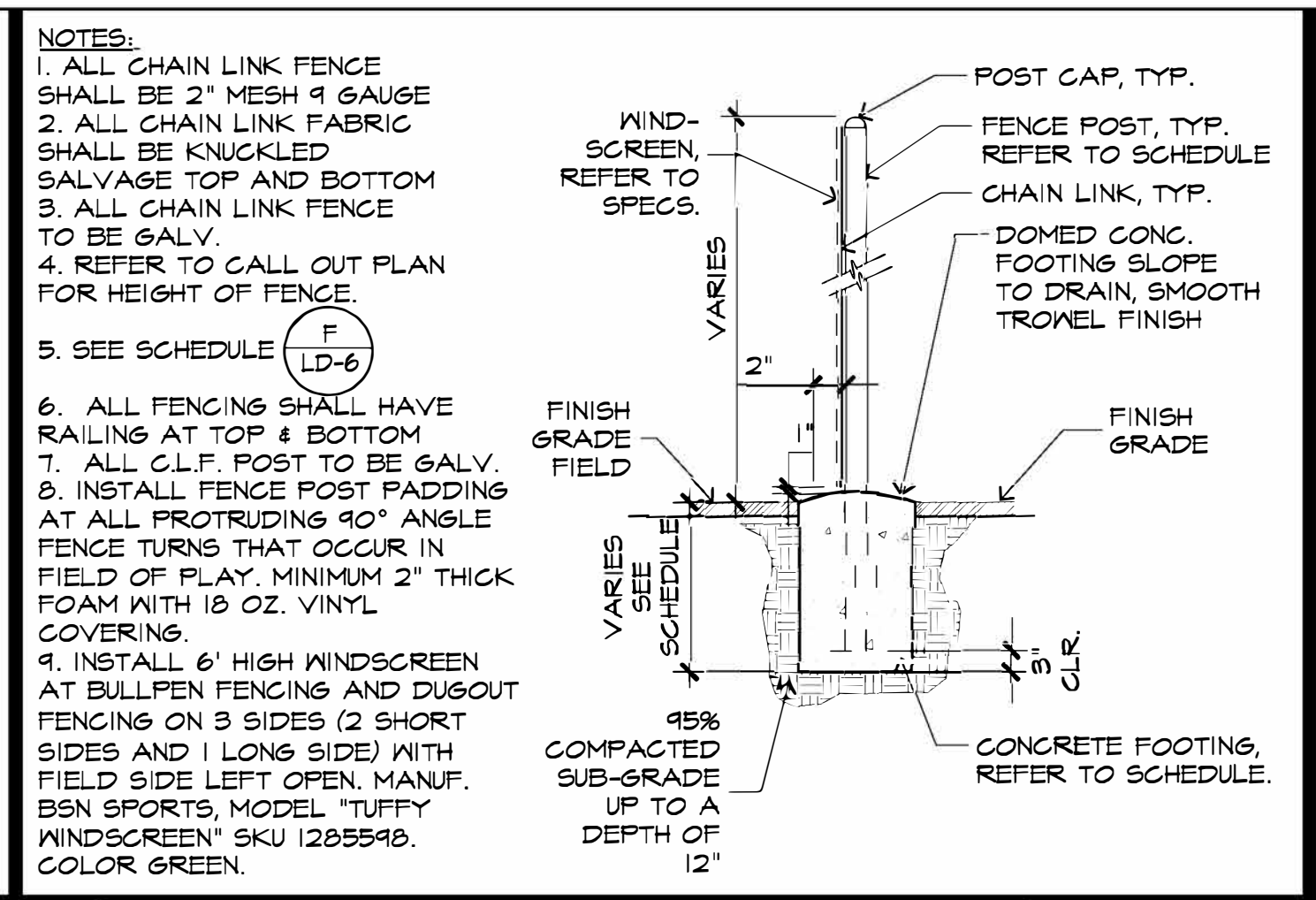
**J SCOREBOARD** NO SCALE



**G HOME PLATE** NO SCALE

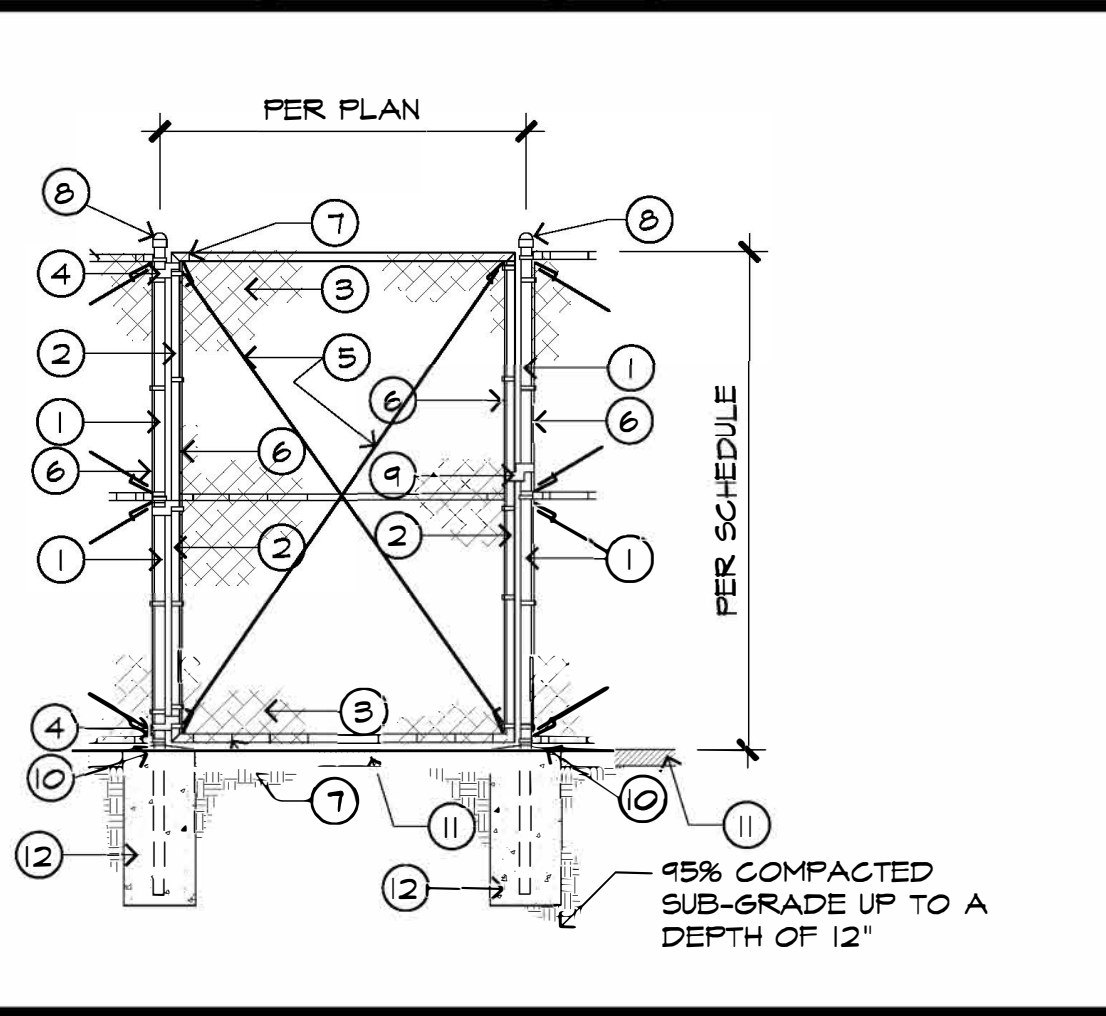


**D FOUL BALL POLE** NO SCALE

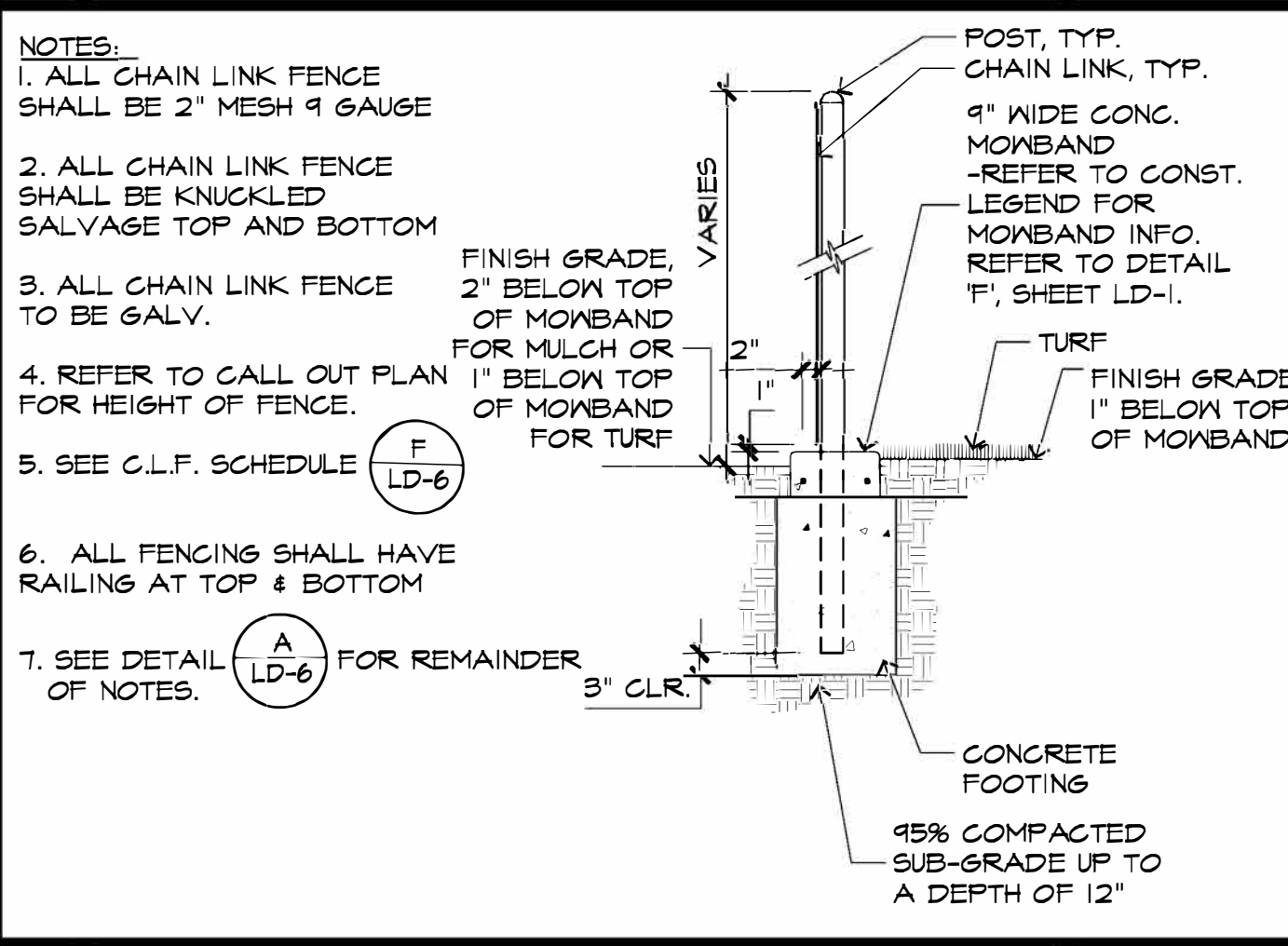


**A CHAINLINK FENCE** NO SCALE

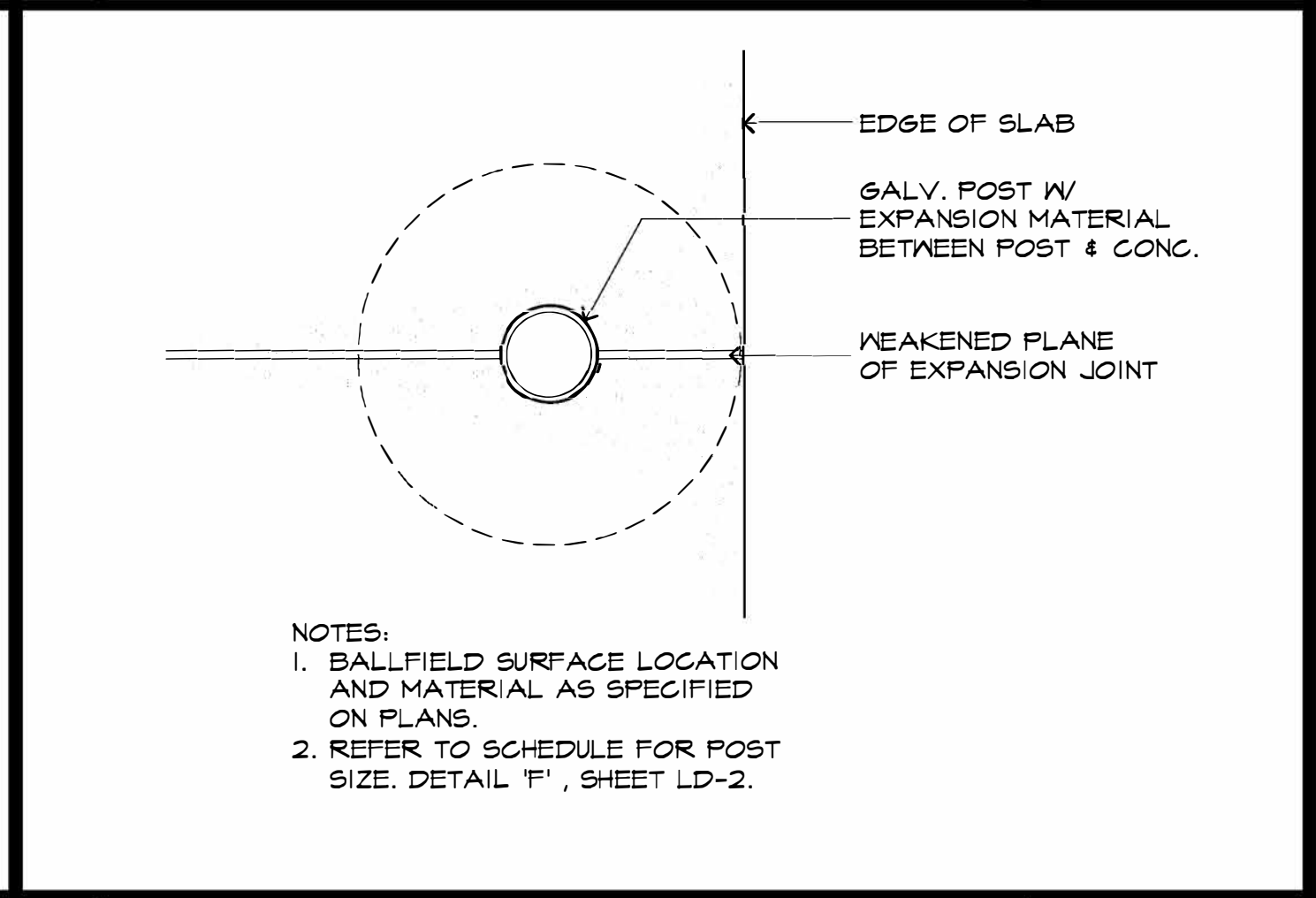
NOTES:  
 1. REFER TO SPECS. FOR CHAIN LINK FENCE MATERIALS AND INSTALLATION.  
 2. CONCRETE FOOTINGS TO BE ALLOWED TO SET FOR SEVEN DAYS PRIOR TO INSTALLATION OF GATE.  
 3. ALL C.L.F. FABRIC TO BE GALV.  
 4. ALL POSTS AND RAILS TO BE GALV.  
 5. GATE MATERIALS MANUFACTURED BY: HOOVER FENCE CO. PH# (800)355-2335 WEBSITE: www.hooverfence.com OR APPROVED EQUAL.



- GATE MATERIALS**
- POSTS: POST 3-1/2 IN. O.D., GALV.
  - GATE FRAMES: TOP, BOTTOM AND SIDE MEMBERS 2-3/8 IN. O.D., MID RAIL 1 5/8" O.D. MITER GATE FRAME CORNERS WELD AND GRIND SMOOTH.
  - FABRIC: 9 GAUGE, 2 IN. MESH, KNUCKLE TOP AND BOTTOM, PLACE ON ACTIVITY OR TURF SIDE OF GATES, GALV.
  - HINGES: INDUSTRIAL BULLDOG HINGES (180° SWINGS), 2 HINGES PER GATE, ONE AT TOP AND BOTTOM.
  - TRUSS ROD: 3/8" DIA. THREADED AT BOTH ENDS AND TENSIONED WITH TWO INDUSTRIAL TRUSS TIGHTENERS SECURED TO GATE FRAME.
  - STRETCHER BAR: 3/16" X 3/4" WITH 1/8" X 1" TENSION BANDS AT 1'-0" O.C.
  - TIE WIRES: 11 GAUGE AT 1'-6" O.C. AT GATE FRAME TOP, BOTTOM AND MID RAILS. POST CAPS SHALL BE CAST ALUMINUM.
  - PRESSED STEEL GALV. SINGLE GATE FORK LATCH (LOCKABLE) PROVIDE A 1" CROWN AT TOP OF ALL POST FOOTING PAVING, REFER TO CALL OUT PLAN.
  - POST FOOTING REFER TO SCH., THIS DETAIL.

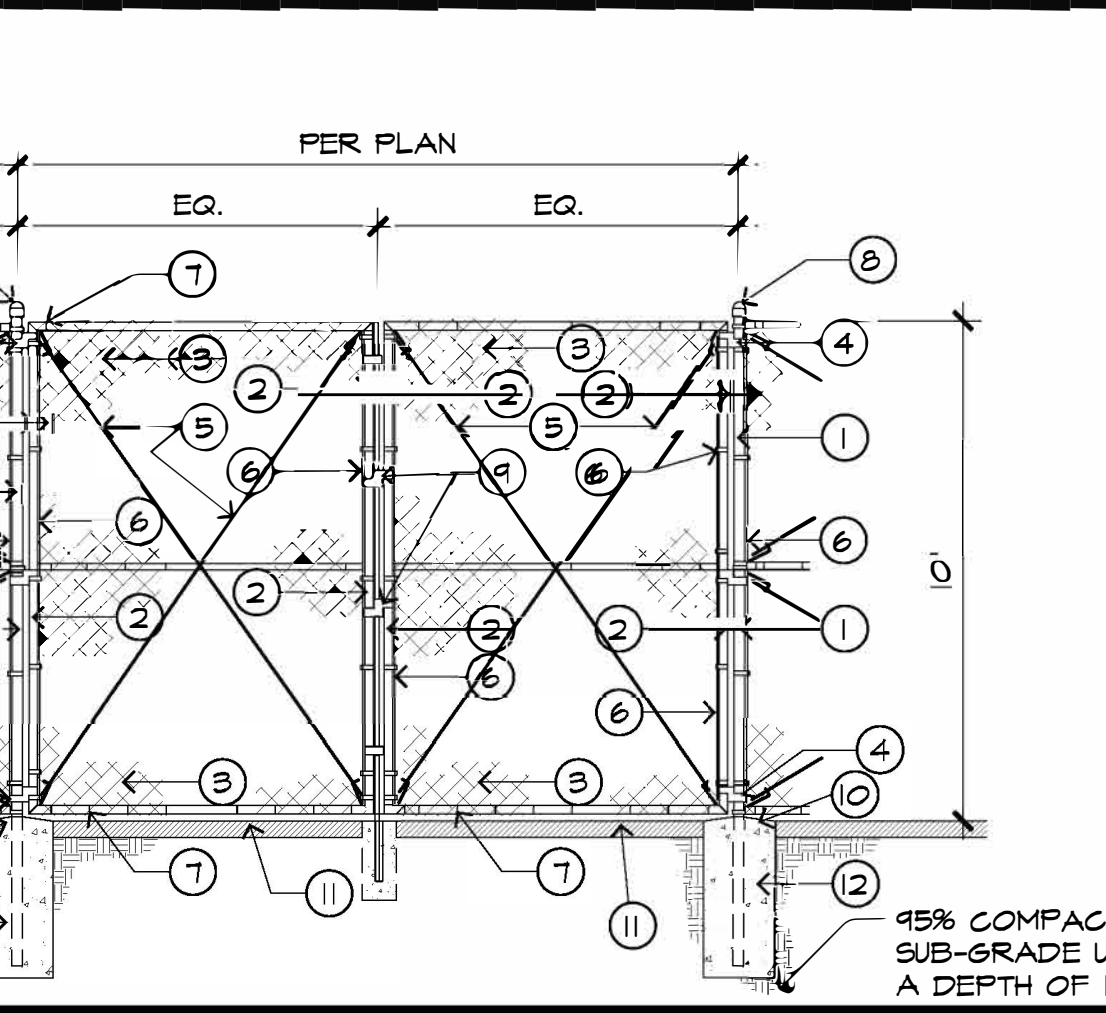


**E CHAINLINK FENCE W/ MOWBAND** NO SCALE



**B POST TO REBAR CONNECTION** NO SCALE

NOTES:  
 1. REFER TO SPECS. FOR CHAIN LINK FENCE MATERIALS AND INSTALLATION.  
 2. CONCRETE FOOTINGS TO BE ALLOWED TO SET FOR SEVEN DAYS PRIOR TO INSTALLATION OF GATES.  
 3. ALL C.L.F. FABRIC TO BE GALV.  
 4. ALL POSTS & RAILS TO BE GALV.  
 5. GATE MATERIALS MANUFACTURED BY: HOOVER FENCE CO. PH# (800)355-2335 WEBSITE: www.hooverfence.com OR APPROVED EQUAL.

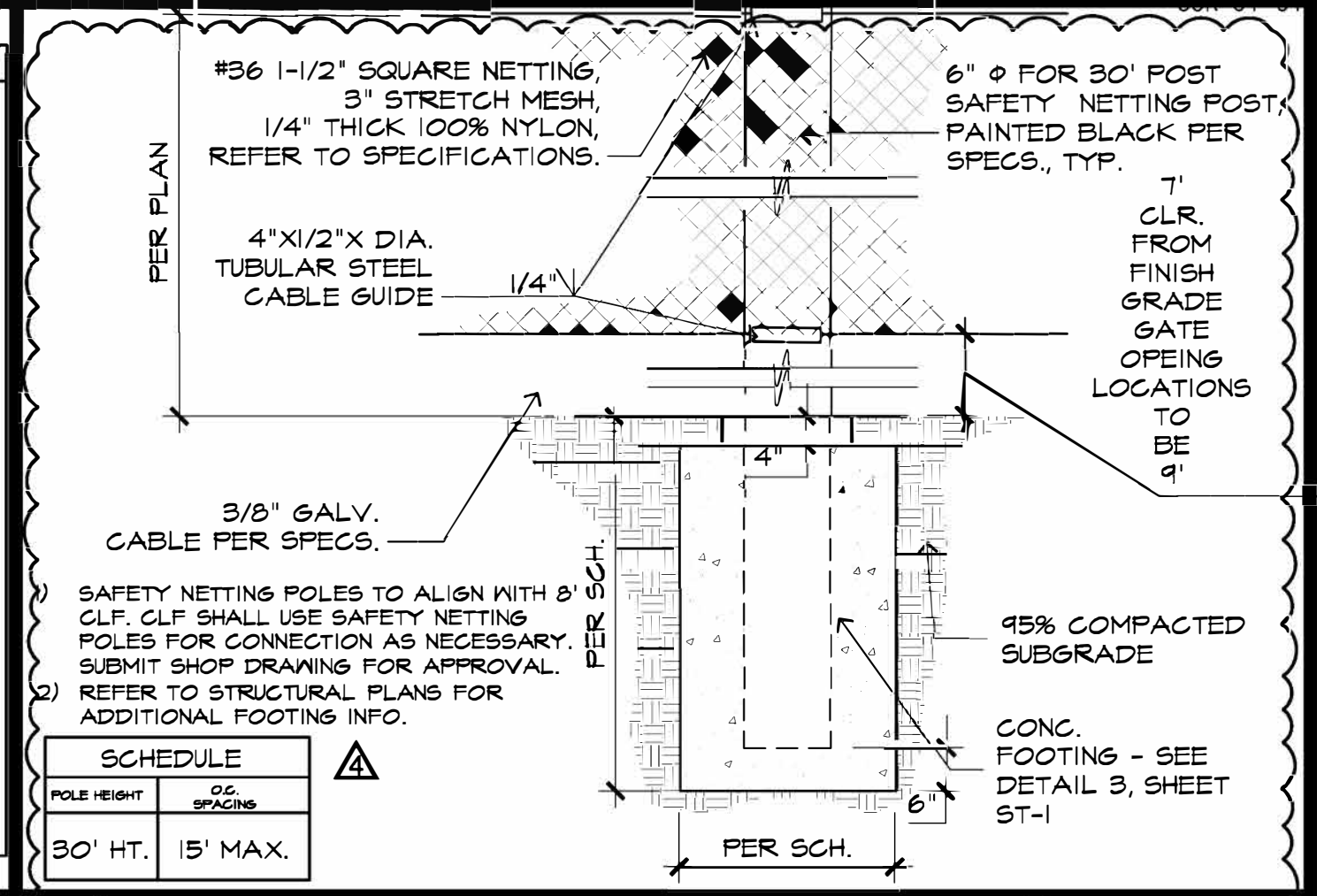


- GATE MATERIALS**
- POSTS: POST 3-1/2 IN. O.D., GALV.
  - GATE FRAMES: TOP, BOTTOM AND SIDE MEMBERS 2-3/8 IN. O.D., MID RAIL 1 5/8" O.D. MITER GATE FRAME CORNERS WELD AND GRIND SMOOTH, GALV.
  - FABRIC: 9 GAUGE, 2 IN. MESH, KNUCKLE TOP AND BOTTOM, PLACE ON ACTIVITY OR TURF SIDE OF GATES, GALV.
  - HINGES: INDUSTRIAL BULLDOG HINGES (180° SWINGS), 2 HINGES PER GATE, ONE AT TOP AND BOTTOM.
  - TRUSS ROD: 3/8 IN. DIAM. THREADED AT BOTH ENDS AND TENSIONED WITH TWO INDUSTRIAL TRUSS TIGHTENERS SECURED TO GATE FRAME.
  - STRETCHER BAR: 3/16 X 3/4 IN. WITH 1/8 X 1 IN. TENSION BANDS AT 1'-0" O.C.
  - TIE WIRES: 11 GAUGE AT 1'-6" O.C. AT GATE FRAME TOP, BOTTOM AND MID RAILS. POST CAPS SHALL BE CAST ALUMINUM.
  - DROP ROD LATCH (LOCKABLE) PROVIDE A 1" CROWN AT TOP OF ALL POST FOOTING PAVING, REFER TO CALL OUT PLAN.
  - 12" Ø X 4'-0" DEEP CONG. POST FOOTING

**L CHAINLINK DOUBLE GATE** NO SCALE

CLASS	CHAINLINK FENCE POST SIZE			CHAINLINK FENCE MATERIAL
	POSTS	NOM. DIA.	FOOT'S DEPTH	
IA	3'-6" LINE	1 1/2"	2.72	CHAIN LINK FABRIC - 2" MESH, 9 GA. TRUSS RODS - 3/8" DIA. GALV. ROD STRETCHER BAR 1/4" X 3/4". CHAIN LINK FABRIC & BULLPEN - 1" MESH, 4 GA. TRUSS RODS - 3/8" DIA. GALV. ROD STRETCHER BAR 1/4" X 3/4".
IA	3'-6" END	1 1/2"	2.72	
IA	3'-6" CORNER	1 1/2"	2.72	
IA	6" LINE	2"	3.66	
IA	6" END	2"	3.66	
IA	6" CORNER	2"	3.66	
IA	8" LINE	2-1/2"	5.76	
IA	8" END	2-1/2"	5.76	
IA	8" CORNER	2-1/2"	5.76	
IA	8" LINE W/ MS	3-1/2"	4.12	
IA	8" END W/ MS	3-1/2"	4.12	
IA	8" COR W/ MS	3-1/2"	4.12	
IA	10" LINE	3"	7.56	
IA	10" END	3"	7.56	
IA	10" CORNER	3"	7.56	
IA	10" LINE W/ MS	4"	10.8	
IA	10" END W/ MS	4"	10.8	
IA	10" CORNER W/ MS	4"	10.8	
IA	TOP, MIDDLE, BOTTOM RAIL, HORIZ. BRACE	1 1/4"	2.27	

**F CHAINLINK SCHEDULE** NO SCALE



**C 30' HIGH SAFETY NETTING POST** NO SCALE

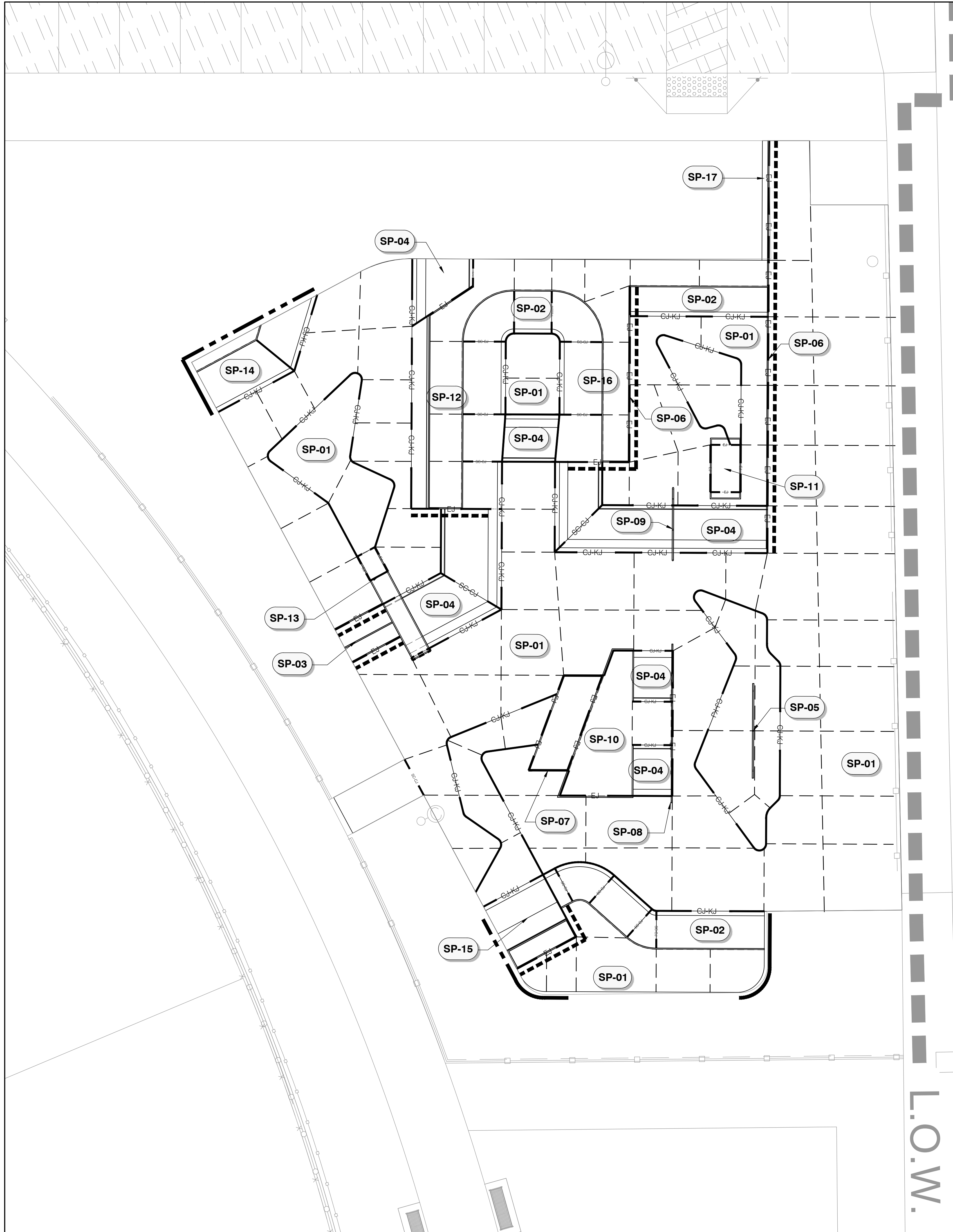












**SKATEPARK SCHEDULE**

SYMBOL	DESCRIPTION	DETAIL	SECTION
SP-01	4" THICK CONCRETE FLATWORK		
SP-02	QUARTERPIPE	1/SK9.1	H, V
SP-03	STAIRS	5/SK9.2	B
SP-04	RADIUS WEDGE	2/SK9.1	C, G, I, L, R
SP-05	FLAT GRIND RAIL	3/SK9.2	T
SP-06	GRIND LEDGE	6/SK9.2	P
SP-07	MANUAL PAD	6/SK9.2	O, P, Q
SP-08	FLAT GRIND OUT RAIL	4/SK9.2	S
SP-09	RAKED GRIND RAIL	2/SK9.2	N
SP-10	CANTILEVERED GRIND LEDGE	8/SK9.1	Q
SP-11	PANNED MANUAL PAD	1/SK9.2	M
SP-12	QUARTERPIPE EXTENSION WITH SLAPPY	6/SK9.1	E
SP-13	PANNED RADIUS GRIND LAUNCH	7/SK9.1	D
SP-14	VERT WALL	5/SK9.1	A
SP-15	RADIUS WEDGE EXTENSION	3/SK9.1	U
SP-16	QUARTERPIPE EXTENSION	4/SK9.1	J
SP-17	RAKED RETAINING WALL	SK8.1	L

**JOINTING SCHEDULE**

SYMBOL	DESCRIPTION	QTY	DETAIL
EJ	EXPANSION JOINT	278 LF	6/SK9.0
CJ-KJ	COLD JOINT OR KEY JOINT	630 LF	7/SK9.0
H-03	SAWCUT JOINT	906 LF	8/SK9.0
H-04	TURNDOWN EDGE AT FINISH SURFACE	129 LF	4/SK9.0
H-05	TURNDOWN EDGE AT FINISH GRADE	66 LF	5/SK9.0
H-06	SC OR CJ - FIELD DETERMINED	108 LF	

\*\*JOINT PLAN HAS BEEN DEVELOPED TO PROVIDE GUIDANCE TO THE CONTRACTOR FOR THE USE OF SAW CUTS, COLD & EXPANSION JOINTS. ACTUAL FIELD VARIANCES WILL TAKE PRECEDENCE OVER THIS GUIDE. CONTRACTOR SHALL CUT SLAB AS NEEDED TO MINIMIZE CRACKING.

ALIGN SAW CUTS WITH EXPANSION AND COLD JOINTS AND START FROM CORNERS WHERE POSSIBLE TO PREVENT EXCESS CRACKING. SAW CUTS SHALL BE NO MORE THAN 10' X 12' AND/OR NOT TO EXCEED 120 SQUARE FEET AND A 2:1 MAX. RATIO BETWEEN SAW CUTS AND COLD OR EXPANSION JOINTS.

ALL SAW CUTS TO BE FILLED WITH SELF-LEVELING POLYURETHANE SEALANT AND TOOLED FLAT. MASK ALL SAW CUT/CONSTRUCTION JOINT EDGES TO PROTECT SURROUNDING CONCRETE FROM EXCESS SEALANT. EXPANSION JOINTS TO BE FILLED WITH POLYURETHANE BASED NON-SAGGING ELASTOMERIC SEALANT AND TOOLED FLAT. COLOR OF CAULK SHOULD RESEMBLE COLOR OF CONCRETE (ALUMINUM GRAY OR SIMILAR)

\*\* PROVIDE 1/4" TOOLED EDGES TO JOINTS - SEE TYPICAL DETAILS & CONSTRUCTION SPECIFICATIONS FOR JOINT INFORMATION & INSTALLATION

**NOTES:**

- SEE SHEET SK4.0 FOR COLOR PLAN.
- THE SLAB CONFIGURATION, NOTES, LOCATION OF EXPANSION JOINTS, COLD JOINTS, SAW CUTS, DETAIL REFERENCES, AND APPLICABLE DETAILS HAVE BEEN INCLUDED FOR CLARITY. JOINTS AND DETAILS SHOWN ARE FOR THE SKATEPARK ONLY. REFER TO THE LANDSCAPE PLANS FOR SCOPES BEYOND THE SKATEPARK.
- SUGGESTED ORDER OF CONSTRUCTION FOR CONCRETE ELEMENTS WITHIN THE SKATEPARK FOOTPRINT:
  - SUBSURFACE DRAINAGE
  - SUBGRADE PREP - GRADE, MOISTURE CONDITION, AND COMPACT SKATEPARK FOOTPRINT TO +/- .1' OF SPECIFIED SUBGRADE ELEVATIONS.
  - FINE GRADING
  - LEDGES AND MANUAL PADS
  - BANKS AND TRANSITIONS
  - GRIND RAIL FOOTING INSTALLATION
  - FLOOR SLAB/FLATWORK
- ALL EXPOSED CONCRETE AND SHOTCRETE SURFACES TO BE NATURAL GRAY IN COLOR WITH HARD STEEL TROWEL FINISH UNLESS OTHERWISE SPECIFIED.



**PROJECT TEAM:**  
 LANDSCAPE ARCHITECT  
**MOORE JACOFANO GOLTSMAN, INC.**  
 ELECTRICAL ENGINEER  
**LRA ENGINEERS**  
 CIVIL ENGINEER  
**BKF**  
 STRUCTURAL ENGINEER  
**ISE**  
 SKATEPARK DESIGNER  
**SPOHN RANCH**

**OLIVE BOWL KAKU PARK**

LINDSAY, CA 93247

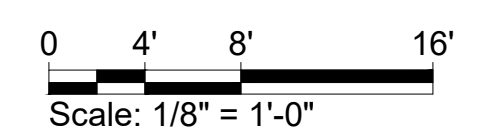
**INFORMATION PLAN**

DATE	REVISION
10-18-21	50% CD Submittal
12-8-21	90% CD Submittal
12-14-22	90% CD Submittal
2-13-23	100% CD Submittal
4-7-23	ADDENDUM #5

**STAMP**

CHECKED BY	DATE
DH	2-13-23
DRAWN BY	JOB NO.
ZM, DM	05500.00

**SK3.0**  
 SHEET 60 OF 85 SHEETS



L.O.W.



CONSULTANT:



PROJECT TEAM:

LANDSCAPE ARCHITECT  
**MOORE IACOFANO GOLTSMAN, INC.**  
ELECTRICAL ENGINEER  
**LRA ENGINEERS**  
CIVIL ENGINEER  
**BKF**  
STRUCTURAL ENGINEER  
**ISE**  
SKATEPARK DESIGNER  
**SPOHN RANCH**

**OLIVE BOWL  
KAKU  
PARK**

LINDSAY, CA  
93247

SHEET TITLE

**SPORTS FIELD  
POLE  
FOUNDATION  
DETAILS**

DATE REVISION

10-18-21	50% CD Submittal
12-8-21	90% CD Submittal
12-14-22	90% CD Submittal
2-13-23	100% CD Submittal
4-7-23	ADDENDUM #5

STAMP

2-9-23	
CHECKED BY	DATE
C.R.	2-13-23
DRAWN BY	JOB NO.
LRA	05500.00

SHEET

**E-3.1**

SHEET 83 OF 85 SHEETS

POLE FOUNDATION SCHEDULE (SEE LIGHT POLE FOUNDATION DETAIL)					
TYPE	ASD GROUNDLINE FORCES (MAXIMUM)			C.I.P. DEEP FOUNDATION	
	MOMENT (M) KIP-FT	SHEAR (V) KIPS	VERTICAL (P) KIPS	DIAMETER INCHES	EMBEDMENT FEET
LSS60-AA	27.97	0.798	0.968	30"	10'-0"
LSS60-A	37.75	1.058	1.461	30"	10'-0"
LSS70-A	47.15	1.090	1.557	30"	12'-0"
LSS80-A	67.47	1.383	2.317	30"	14'-0"

\* VERTICAL FORCE DOES NOT INCLUDE WEIGHT OF PRECAST BASE. VERTICAL (P) LOAD IS THE DRESSED POLE WEIGHT FOR ERECTION PURPOSES.

PRECAST BASE IDENTIFICATION					
PRECAST BASE TYPE	WEIGHT LBS	OVERALL LENGTH FEET	HEIGHT ABOVE GRADE FEET	EMBEDMENT IN C.I.P. DEEP FOUNDATION FEET	OUTSIDE DIAMETER INCHES
2B	1,840	17'-3"	7'-3"	8'-0"	12.00"
3B	2,670	20'-0"	8'-0"	10'-0"	13.375"
4B	3,710	22'-0"	8'-0"	12'-0"	15.750"

POLE IDENTIFICATION					
LOCATION MARK	POLE TYPE	PRECAST BASETYPE	FIXTURE CONFIGURATION (MAX # OF FIXTURES PER CROSSARM)	FIXTURE EPA (MAXIMUM)	
A3, A6	LSS60-AA	2B	3 [2 LED900, 1 LED1200]	6.9	
A4	LSS60-A	2B	6 [3(2 LED900, 1 LED1200)/3(2 LED900, 1 LED1200)]	10.7	
A1, A2			4 LED1200		
B3, B4, B5, B6	LSS70-A	3B	5 LED1200	10.5	
C1, C2			4 LED1500		
B1, B2	LSS80-A	4B	5 LED1500	12.5	

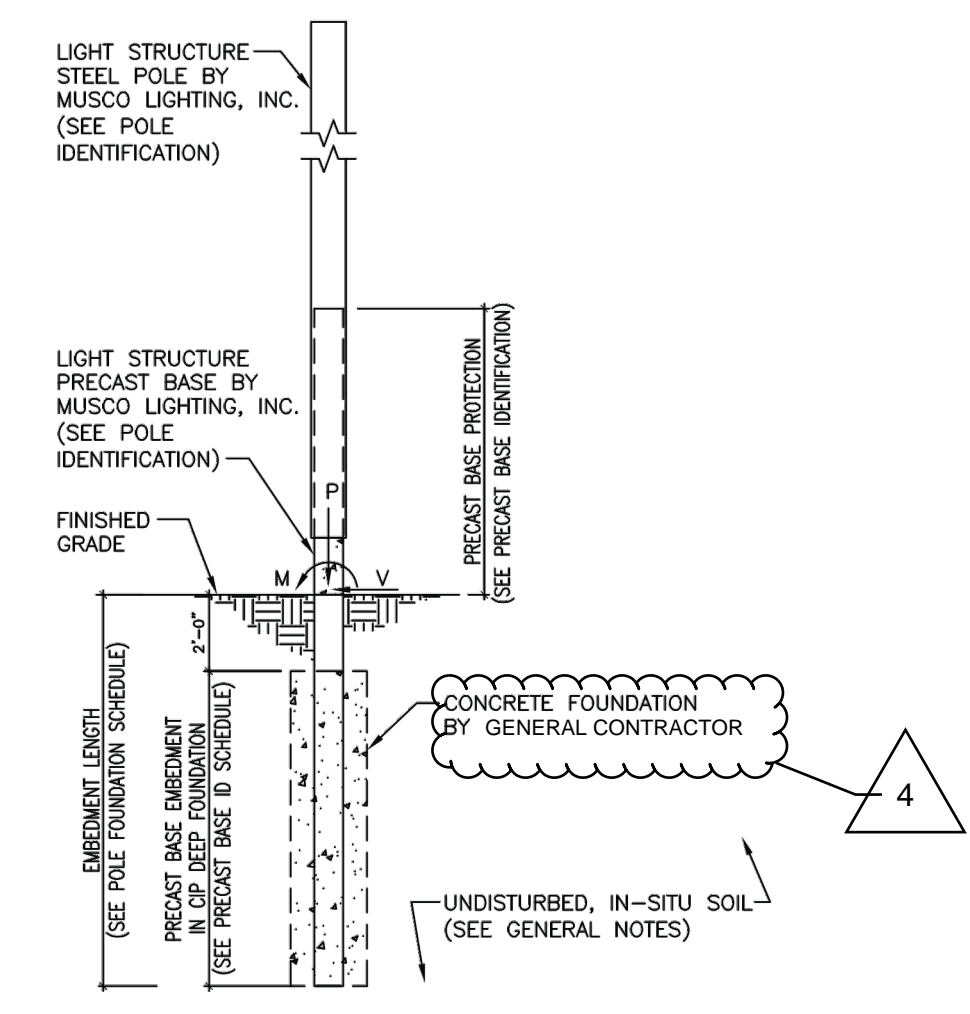
LED 1500 FIXTURE: EPA = 2.5 SQ-FT MAX & WEIGHT = 80 LBS (FIXTURE ALONE), PER MUSCO LIGHTING, INC.  
LED 1200 FIXTURE: EPA = 2.4 SQ-FT MAX & WEIGHT = 45 LBS (FIXTURE ALONE), PER MUSCO LIGHTING, INC.  
LED 900 FIXTURE: EPA = 2.4 SQ-FT MAX & WEIGHT = 40 LBS (FIXTURE ALONE), PER MUSCO LIGHTING, INC.

POLE AUXILIARY ATTACHMENTS			
LOCATION MARK	ATTACHMENT TYPE & QUANTITY	ATTACHMENT ELEVATION A.G.L. - FT	
A1, A2, A3, A6, B1, B2, B3, B4, B5, B6	(1) LED 575	15.5	
A4	2 (1/1) LED 575	15.5	
C1, C2	(2) LED 575	15.5	

**GENERAL NOTES**  
ALL CONSTRUCTION AND WORKMANSHIP SHALL CONFORM TO THE CALIFORNIA BUILDING CODE, 2019 EDITION.  
WIND - ASCE 7-16, Vult = 95 MPH (EXPOSURE C); Vasd = 74 MPH (EXPOSURE C), RISK CATEGORY II  
SEISMIC - SS=0.535; S1=0.214; SDS=0.489; SD1=0.310; RISK CATEGORY=II; I=1.0; SITE CLASSIFICATION=II; SEISMIC DESIGN CATEGORY=II  
SEISMIC FORCE RESISTING SYSTEM=NON-BUILDING STRUCTURE NOT SIMILAR TO BUILDINGS; ANALYSIS PROCEDURE=EQUIVALENT LATERAL FORCE PROCEDURE  
REFERENCE POLE LOCATION DRAWING FOR ACTUAL POLE PLACEMENT AND SITE LOCATION.  
THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION PROCEDURES AND SAFETY CONDITIONS AT THE JOB SITE.  
**SOIL DESIGN PARAMETERS**  
REFERENCE GEOTECHNICAL ENGINEERING INVESTIGATION, PREPARED BY BSK ASSOCIATES, DATED OCTOBER 25, 2021; BSK ASSOCIATES PROJECT NO. G21-320-11F.  
ALLOWABLE VERTICAL SOIL CAPACITY = 530'2 WHERE D IS PILE DIAMETER (FEET) AND L IS TOTAL EMBEDMENT LENGTH (FEET). IGNORE UPPER 2- FEET OF SOIL.  
ALLOWABLE LATERAL PASSIVE SOIL BEARING PRESSURE: 300 PSF/FT. IGNORE UPPER 2- FEET OF SOIL.  
A REPRESENTATIVE OF BSK ASSOCIATES SHOULD BE AVAILABLE AT THE TIME OF THE FOUNDATION INSTALLATION TO VERIFY THE SOIL DESIGN PARAMETERS AND TO PROVIDE ASSISTANCE IF ANY PROBLEMS ARISE IN FOUNDATION INSTALLATION.  
ENCOUNTERING SOIL FORMATIONS THAT WILL REQUIRE SPECIAL DESIGN CONSIDERATIONS OR ACCORDING TO THE SOIL CONDITIONS THAT EXIST.  
IF AN DISCREPANCY OR INCONSISTENCY ARISES, NOTIFY THE ENGINEER OF SUCH DISCREPANCY IMMEDIATELY. THE FOUNDATION CONDITIONS MAY NEED TO BE ANALYZED.  
ALL PRECAST BASES AND CONCRETE BACKFILL MUST BEAR ON AND AGAINST FIRM, UNDISTURBED SOIL OR AS APPROVED BY A GEOTECHNICAL ENGINEER.  
ALL EXCAVATIONS MUST BE FREE OF LOOSE SOIL AND DEBRIS PRIOR TO FOUNDATION INSTALLATION. ALL EXCAVATIONS SHALL BE PROTECTED BY CONCRETE BACKFILL. ALL EXCAVATIONS SHALL BE FREE OF WATER OR CONCRETE SHALL BE PLACED WITH A TREMIE PIPE IN ACCORDANCE WITH ULTIMATE STRENGTH OF 1,000 PSI GREATER THAN REQUIRED UNDER CONCRETE BACKFILL BELOW.  
**CONCRETE BACKFILL**  
CONCRETE BACKFILL WITHOUT STEEL REINFORCEMENT SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH AT 28 DAYS OF 2,500 PSI (2,500PSI USED FOR STRUCTURAL DESIGN).  
CONCRETE BACKFILL SHALL ATTAIN A MINIMUM STRENGTH OF 2,500 PSI PRIOR TO STEEL POLE ERECTION.  
USE TYPE II/V PORTLAND CEMENT OR AS RECOMMENDED BY THE ENGINEER.  
MIX IN CONFORMANCE WITH ASTM C-94  
AGGREGATES PER ASTM C-33 (1" MAX AGG. SIZE) 3/8" MAX AGG. SIZE ACCEPTABLE WHERE PUMP MIXES ARE USED FOR UNREINFORCED CONCRETE BACKFILL.  
PLACE CONCRETE IMMEDIATELY AFTER COMPLETION OF EXCAVATION AND INSPECTION BY THE GEOTECHNICAL ENGINEER. NO EXCAVATIONS SHALL BE LEFT UNPROTECTED OR OPEN OVERNIGHT.  
CONCRETE SHALL BE PLACED IN ONE CONTINUOUS OPERATION (NO CONSTRUCTION JOINT) TO GRADE WITH SPECIAL EQUIPMENT WITH A MAXIMUM FREEFALL OF 5 FT AND TO PREVENT CONCRETE FROM STRIKING THE SIDES OF THE EXCAVATION. VIBRATE TOP 5 FT.  
**MISCELLANEOUS**  
FIXTURES MUST BE LOCATED TO MAINTAIN 10'-0" MINIMUM HORIZONTAL CLEARANCE FROM ANY OBSTRUCTION.  
POLE FIXTURES, PRECAST BASES, ELECTRICAL ITEMS, PLATFORMS, SPECIFICATIONS, AND INSTALLATION PER MUSCO LIGHTING, INC.



POLE SUPPORT FOUNDATION	MUSCO LIGHTING, INC. 2107 STEWART ROAD MUSCATINE, IOWA 52761 MUSCO No. 212337	DATE 11/03/21
OLIVE BOWL KAKU PARK EXPANSION LINDSAY, CA	KNA STRUCTURAL ENGINEERS 9931 MUIRLANDS BLVD. IRVINE CA, 92618 KNA No. 363.905	SHEET C1 OF 2



LIGHT POLE FOUNDATION DETAIL  
SCALE: NO SCALE

STATEMENT OF SPECIAL INSPECTIONS*		
ITEM	CONTINUOUS/PERIODIC	SCOPE
1. PIER FOUNDATIONS	CONTINUOUS	INSPECT INSTALLATION OF DRILLED PIER FOUNDATIONS. VERIFY DIAMETER, EMBEDMENT DEPTHS AS SCHEDULED, DEPTHS OF FILL, AND BEARING STRATA
2. CONCRETE PLACEMENT	CONTINUOUS	INSPECT PLACEMENT OF CONCRETE FOR PROPER APPLICATION TECHNIQUES. VERIFY THAT CONCRETE CONVEYANCE AND DEPOSITING AVOIDS SEGREGATION OR CONTAMINATION. VERIFY THAT CONCRETE IS PROPERLY CONSOLIDATED.
3. CRETEX PRECAST/PRESTRESSED CONCRETE BASES	(PCI CERTIFIED)	FABRICATOR EXEMPT.** REFERENCE ICC ESR-3765.
4. STRUCTURAL STEEL	(L.A. CITY APPROVED)	FABRICATOR EXEMPT.** REVIEW CERTIFIED MILL TESTS REPORTS AND IDENTIFICATION MARKINGS.

\* The Special Inspector shall be a qualified person who shall demonstrate competence, to the satisfaction of the Building Official, for inspection of the particular type of construction or operation requiring special inspection.  
\*\*Special inspections shall not be required when the work is done on the premises of a fabricator registered and approved by the City to perform such work without special inspection.



POLE SUPPORT FOUNDATION	MUSCO LIGHTING, INC. 2107 STEWART ROAD MUSCATINE, IOWA 52761 MUSCO No. 212337	DATE 11/03/21
OLIVE BOWL KAKU PARK EXPANSION LINDSAY, CA	KNA STRUCTURAL ENGINEERS 9931 MUIRLANDS BLVD. IRVINE CA, 92618 KNA No. 363.905	SHEET C2 OF 2